

PHILIPPINE BIDDING DOCUMENT

(As Harmonized with Development Partners)



Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023



Bureau of Learning Resources – Cebu (BLR-Cebu)

JULY 2023

2023c-BLR4(001&005)-BV-CB-022

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Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

BDS – Bid Data Sheet.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

CDA - Cooperative Development Authority.

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means “delivered duty paid.

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – “Free Carrier” shipping point.

FOB – “Free on Board” shipping point.

Foreign-funded Procurement or Foreign-Assisted Project– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as “Call-Offs,” are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and

other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

IB – Invitation to Bid.

ITB – Instruction to Bidders.

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.

Section I. Invitation to Bid



Republic of the Philippines
Department of Education
Procurement Management Service

Bids and Awards Committee V

PROJECT NO.: 2023-BLR4(001&005)-BV-CB-022

INVITATION TO BID

FOR THE

Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023

- The **Department of Education (DepEd)**, through the *Government of the Philippines (GOP)* under **2022 LTE-SM (Continuing Funds)** and **2023 LTE-SM (Current Funds)** intends to apply the sum of **Philippine Pesos Two Billion, Six Hundred Seventy-Four Million, Three Hundred Sixty-Eight Thousand, Two Hundred Ninety-One and 92/100 (Php2,674,368,291.92)**, being the total Approved Budget for the Contract (ABC) to payments under the contract for **Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023** broken down as follows:

LOT NO.	DESCRIPTION	ITEMS	APPROVED BUDGET FOR THE CONTRACT (ABC) in Php
1 MP-DSC	DEVELOPED STORAGE CABINET (MP-LOT 1)	-1 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	246,682,476.37
2 MI-C	CHEMICALS (MI-LOT 2)	-18 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	36,482,176.73
3 MI-GLT	GLASSWARES AND LAB TOOLS (MI-LOT 3)	-32 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	60,014,011.47
4 MI-SDIMTESLT	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS – EARTH & SPACE AND LIVING THINGS (MI-LOT 4)	-7 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	59,887,240.26
5 MI-MM	MATHEMATICAL MANIPULATIVES (MI-LOT 5)	-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	145,697,032.30

6 MP-DBS	DEVELOPED BASIC SCKIT (MP-LOT 6)	<i>-55 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	284,509,879.30
7 MP-DS&ME	DEVELOPED SCIENCE AND MATHEMATICS EQUIPMENT (MP-LOT 7)	<i>-15 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	193,348,384.08
8 MP-DSC	DEVELOPED STORAGE CABINET (MP-LOT 8)	<i>-1 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	275,310,260.87
9 MI-C	CHEMICALS (MI-LOT 9)	<i>-18 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	42,313,270.72
10 MI-GLT	GLASSWARES AND LAB TOOLS (MI-LOT 10)	<i>-30 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	61,969,935.83
11 MI-SDIMTM	SCIENCE DEVICES, INSTRUMENTS AND MEASURING TOOLS- MATTER (MI-LOT 11)	<i>-15 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	91,304,938.89
12 MI- SDIMTESLT	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - EARTH & SPACE AND LIVING THINGS (MI-LOT 12)	<i>-25 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	315,088,579.57
13 MI-MM	MATHEMATICAL MANIPULATIVES (MI-LOT 13)	<i>-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	155,240,109.04
14 MI-MTI	MATHEMATICAL TOOLS AND INSTRUMENT (MI- LOT 14)	<i>-16 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	177,776,266.83
15 MI-M:EHB	MODELS: EARTH AND OTHER HEAVENLY BODIES (MI-LOT 15)	<i>-12 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	160,228,602.33
16 MI-M:HA	MODELS: THE HUMAN ANATOMY (MI-LOT 16)	<i>-14 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	90,711,056.44
17 MI-M:BSS	MODELS: OTHER BIOLOGICAL STRUCTURES AND SPECIES (MI-LOT 17)	<i>-10 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	64,863,982.79
18 MI-M:MG	MODELS: MOLECULAR GEOMETRY (MI-LOT 18)	<i>-6 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	51,006,144.41
19 MI-FMEK	FORCE, MOTION AND ENERGY KITS (MI-LOT 19)	<i>-48 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document</i>	161,933,943.69
TOTAL			2,674,368,291.92

Bids received in excess of the ABC for the project shall be automatically rejected at bid opening.

2. The **DepEd**, through the **Bids and Awards Committee (BAC) V**, now invites bids for the goods and services contemplated in this project. Expected completion of delivery of the goods and services per lot is specified in **Section VI. Schedule of Requirements** and **Section VII. Technical Specifications** of this bidding documents.

Prospective bidder should have completed, within a period of **ten (10) years** immediately preceding the deadline for submission of bids, a Single Largest Completed Contract (SLCC) similar to the contract to be bid and the value of which, adjusted, if necessary, by the Bidder to current prices using the Philippine Statistics Authority's (PSA's) Consumer Price Index (CPI), must be **at least fifty percent (50%)** of the ABC of the lot bid for; **OR at least two (2) similar contracts** and the total of the aggregated contract amount should be equivalent to **at least fifty percent (50%)** of the ABC of the lot bid for; and the largest of these similar contracts must be equivalent to **at least twenty-five percent (25%)** of the ABC of the lot to be bid for.

3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary "*pass/fail*" criterion as specified in the 2016 Revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from **DepEd Procurement Management Service - BAC Secretariat Division (ProcMS-BACSD)** at **Telephone Nos. 8636-6542 or 8633-9343** and inspect the Bidding Documents at the address given below from **Monday to Friday from 8:00am to 5:00pm.**
5. For those who are interested to purchase the Bidding Documents, two (2) options are made available, to wit:

- a. A complete set of Bidding Documents may be acquired by interested Bidders from the **DepEd ProcMS-BACSD, Room M-511, 5th Floor, Mabini Building, DepEd Central Office Complex, Meralco Avenue, Pasig City**, upon accomplishing a bidder's information sheet and payment of a non-refundable fee for the Bidding Documents to the **DepEd Cashier**.

Payment in checks should be made payable to **DECS OSEC Trust.**

- b. Interested Bidders may signify their intent to purchase the Bidding Documents through email at depedcentral.bacsecretariat@deped.gov.ph by accomplishing a bidder's information sheet (**Annex "B"**). Upon receipt of the bidder's information sheet, the BAC Secretariat Division will send through email the details of the DECS OSEC Trust Fund Account for payment. Upon payment, bidders may send through email the proof of

payment before the deadline for submission of bids. Upon receipt of proof of payment, the BAC Secretariat will send the electronic copy of the Bidding Documents.

Amount of Bidding Documents shall be **as follows:**

Lot No.	Bidding Documents Fee (In Php)	Lot No.	Bidding Documents Fee (In Php)
1	7,000.00	11	2,000.00
2	1,000.00	12	9,000.00
3	2,000.00	13	4,000.00
4	2,000.00	14	5,000.00
5	4,000.00	15	4,500.00
6	8,000.00	16	2,500.00
7	5,500.00	17	2,000.00
8	7,500.00	18	1,500.00
9	1,000.00	19	4,500.00
10	2,000.00		
Total			75,000.00

6. The **DepEd** will hold a Pre-Bid Conference for this Project on **July 20, 2023, 10:00 A.M.** at **Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City**, and/or through video conferencing or webcasting via *{Teams, Google meet, YouTube live and/or Facebook live}*, which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat on or before **8:30 A.M. of August 1, 2023** at **Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City**.

Late bids shall not be accepted.

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in Instruction to Bidders (ITB) Clause 14.
9. Bid opening shall be on **August 1, 2023, 9:00 A.M. at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City** and/or through video conferencing or webcasting via *{Teams, Google meet, YouTube live and/or Facebook live}*, Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

Only **two (2) representatives** per bidder will be allowed to enter inside the venue.

For the purpose of constituting a quorum, both the physical and virtual presence of the BAC members shall be considered pursuant to GPPB Resolution No. 09-2020.

10. The **DepEd** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184,

without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

DAISY E. ADRIATICO

Technical Assistant II

Procurement Management Service - BAC Secretariat Division

Rm. M-511, 5th Floor, Mabini Bldg.

DepEd Central Office Complex Meralco Avenue, Pasig City

Telephone Nos. 8636-6542 or 8633-9343

Email address: **depedcentral.bacsecretariat@deped.gov.ph**

12. You may visit the following websites:

For downloading of Bidding Documents:

<https://notices.philgeps.gov.ph/>

<https://www.deped.gov.ph/>

*Date of Issuance of Bidding Documents: **July 15, 2023***

G.H. S. AMBAT

Assistant Secretary and Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, **Department of Education (DepEd)**, through its **Bureau of Learning Resources – Cebu (BLR-Cebu)** wishes to receive Bids for the **Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023**, with project identification number **2023-BLR4(001&005)-BV-CB-022**.

The Procurement Project (referred to herein as “Project”) is composed of **nineteen (19) Lots**, as described in **Section I (Invitation to Bid)**, **Section VI (Schedule of Requirements)**, and **Section VII (Technical Specifications)**.

2. Funding Information

2.1. The GOP, through the source of funding for **General Appropriations Act (GAA) 2022 and 2023** in the amount of **Philippine Pesos Two Billion, Six Hundred Seventy-Four Million, Three Hundred Sixty-Eight Thousand, Two Hundred Ninety-One and 92/100 (Php2,674,368,291.92)**.

2.2. The source of funding is the **GAA 2022 and 2023** under **2022 LTE-SM (Continuing Funds)** and **2023 LTE-SM (Current Funds)**. Pursuant to **NBC No. 590**, the funds for this project shall be valid for release, obligation, and disbursement until **December 31, 2023**, subject to any subsequent issuance to this effect.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

- 5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.
- 5.2. Foreign ownership exceeding those allowed under the rules may participate pursuant to the following:
 - i. When a Treaty or International or Executive Agreement as provided in Section 4 of the RA No. 9184 and its 2016 revised IRR allow foreign bidders to participate;
 - ii. Citizens, corporations, or associations of a country, included in the list issued by the GPPB, the laws or regulations of which grant reciprocal rights or privileges to citizens, corporations, or associations of the Philippines;
 - iii. When the Goods sought to be procured are not available from local suppliers; or
 - iv. When there is a need to prevent situations that defeat competition or restrain trade.
- 5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder should have a Single Largest Completed Contract (SLCC) **at least one (1)** contract similar to the project to be bid and the value of which, adjusted, if necessary, by the Bidder to current prices using the Philippine Statistics Authority's (PSA's) consumer price index (CPI), must be **at least fifty percent (50%)** of the ABC of the lot bid for; OR **at least two (2) similar contracts**, the aggregate amount of which should be equivalent to **at least fifty percent (50%)** of the ABC of the bid for and the largest of these similar contracts must be equivalent to **at least twenty-five percent (25%) of the ABC of the lot to be bid**.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

Subcontracting is not allowed.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address and/or through videoconferencing/webcasting as indicated in **paragraph 6** of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within a period of **ten (10) years** prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

11. Documents Comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - a. For Goods offered from within the Procuring Entity's country:

- i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
 - ii. The cost of all customs duties and sales and other taxes already paid or payable;
 - iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
 - iv. The price of other (incidental) services, if any, as listed in e.
- b. For Goods offered from abroad:
- i. Unless otherwise stated in the Bid Data Sheet (BDS), the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
 - ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications)**.

13. Bid and Payment Currencies

- 13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.
- 13.2. Payment of the contract price shall be made in Philippine Pesos.

14. Bid Security

- 14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall not be less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 14.2. The Bid and bid security shall be valid for **120 calendar days** reckoned from the date of the opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its

Bid.

The Procuring Entity may request additional hard copies of the Bid and/or electronic copies. **Any discrepancy between the hard/paper copies and the copies contained and as presented in the USB Flash Drive shall be a ground for disqualification.**

16. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time at its physical address indicated in paragraph 7 of the **IB**.

17. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the specific time, date, and location mentioned in paragraph 9 of the **IB**. The Bidders' representatives who are present must sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots, and evaluation will be undertaken on a per lot basis, as the case may be. In this case, the Bid Security as required by **ITB** Clause 15 shall be submitted for each lot separately.

19.3. The descriptions of the lots shall be indicated in **Section VII (Technical Specifications)**, although the ABC of the lot is indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABC for the lot/s participated in by the prospective Bidder.

19.4. The Project shall be awarded as separate contract per lot.

- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABC for the lot/s participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABC for the lot/s participated in by the prospective Bidder.

20. Post-Qualification

- 20.1. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.3	<p>For this purpose, contracts similar to the projects shall be:</p> <p>a. Supply and Delivery of Science and/or Mathematics Equipment</p> <p>b. completed within ten (10) years immediately prior to the deadline for the submission and receipt of bids.</p>
7.1	<p>Subcontract</p> <p>Subcontracting shall NOT be allowed.</p>
9	<p>Request for clarifications must be in writing and submitted at least ten (10) calendar days before the deadline set for the submission and receipt of bids.</p> <p>The Procuring Entity's address is:</p> <p style="padding-left: 40px;">ASec. G.H. S. Ambat <i>Bids and Awards Committee (BAC) V</i> <i>c/o Procurement Management Service-BAC Secretariat Division</i> <i>Rm. M-511, 5th Floor, Mabini Bldg.</i> <i>DepEd Central Office Complex Meralco Avenue, Pasig City</i> <i>Telephone Nos. 8636-6542 or 8633-9343</i> <i>Email address: depedcentral.bacsecretariat@deped.gov.ph</i></p> <p>Consistent with Section 22.5.3 of the revised IRR of RA 9184, posting on the PhilGEPS and the procuring entity's website of any supplemental/ bid bulletin shall be considered sufficient notice to all bidders or parties concerned.</p>
11	<p>Documents comprising the Bid: Financial Component</p> <p>The second bid envelope shall contain the financial documents for the Bid, and the Bid Form and Price Schedule shall be per lot as prescribed in the forms provided herein.</p>
12	<p>The price of the Goods shall be quoted DDP (Schools) or the applicable International Commercial Terms (INCOTERMS) for this Project.</p> <p>Bid prices should be written in two (2) decimal places only. Bid prices that are written in more than two (2) decimal places shall be rounded off.</p> <p>Results of bid evaluation that will exceed the ABC shall be a ground for rejection of the bid(s).</p>
14.1	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts indicated in Annex "C" of this bidding document.</p>

14.2	<p>Bid securities, other than a Bid Securing Declaration, shall be turned over to the DepEd Cash Division for custody. The Bid Securing Declaration shall be under the custody of the BAC Secretariat.</p> <p>Bid Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation, superimposition, or alteration affects any material information or feature of the document.</p>
15	<p>Prospective bidders shall enclose their original eligibility and technical documents in a sealed envelope marked as “ORIGINAL – TECHNICAL PROPOSAL.” Copies thereof shall be similarly sealed in envelopes marked as “COPY NO. 1 – TECHNICAL PROPOSAL” and “COPY NO. 2 – TECHNICAL PROPOSAL.” In addition, the USB Flash Drive containing the soft copy of the original eligibility and technical documents shall be submitted and marked as “USB Flash Drive.” The said envelopes containing the original and the copies, and the flash drive shall then be enclosed in one single envelope marked as “TECHNICAL PROPOSAL”. On the other hand, the original of their financial documents shall be enclosed in another sealed envelope marked as “ORIGINAL – FINANCIAL PROPOSAL.” Copies thereof shall be similarly sealed in envelopes marked as “COPY NO. 1 – FINANCIAL PROPOSAL” and “COPY NO. 2 – FINANCIAL PROPOSAL.” The USB Flash Drive containing the soft copy of the original financial documents shall be submitted and marked as “USB Flash Drive.” The said envelopes containing the original and the copies, and the flash drive shall then be enclosed in one single envelope marked as “FINANCIAL PROPOSAL.” Further, the envelopes marked as “TECHNICAL PROPOSAL” and “FINANCIAL PROPOSAL” shall be enclosed and/or sealed in an outer envelope marked as “MOTHER ENVELOPE.” (See Illustration 1).</p> <p>Any discrepancy between the hard/paper copies and the copies contained and as presented in the USB Flash Drive shall be a ground for disqualification.</p> <p>Original copies of the Class “A” Eligibility Legal Documents, such as the SEC, DTI, or the CDA registration certificate and the Mayor’s Permit, may not be submitted on the date and the time of the bid submission. However, the bidder must be able to present such original copies during post-qualification on demand by the BAC or its authorized representative(s) for validation.</p> <p>To facilitate the receipt and classification of bid envelopes, mother envelope shall be RED, the inner envelope containing Technical Proposal shall be Blue, the inner envelope containing Financial Proposal shall be Green, and the Post-Qualification Documents shall be Brown.</p> <p>Post-qualification documents may be submitted during the bidding but this does not disqualify bidders who will not submit post-qualification documents during bid submission.</p> <p>Note: Each Bidder shall submit three (3) paper copies (i.e, one (1) original and two (2) copies) of its bid and two (2) USB Flash</p>

Drive electronics copies (one Technical Component and one Financial Component). The E-copy of the Price Schedule must be in the form of Excel and PDF.

Unsealed or unmarked bid envelopes, shall be rejected. However, bid envelopes that are not properly sealed and marked as required in the Bidding Documents, shall be accepted, provided that the bidder or its duly authorized representative shall acknowledge such condition of the bid as submitted. The BAC shall assume no responsibility for the misplacement of the contents of the improperly sealed or marked bid, or for its premature opening.

Online submission of bids is not allowed.

19.3 The Project shall be awarded by lot, details as follows:

LOT NO.	DESCRIPTION	ITEMS	APPROVED BUDGET FOR THE CONTRACT (ABC) in Php
1 MP-DSC	DEVELOPED STORAGE CABINET (MP-LOT 1)	-1 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	246,682,476.37
2 MI-C	CHEMICALS (MI-LOT 2)	-18 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	36,482,176.73
3 MI-GLT	GLASSWARES AND LAB TOOLS (MI-LOT 3)	-32 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	60,014,011.47
4 MI-SDIMTESLT	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS – EARTH & SPACE AND LIVING THINGS (MI-LOT 4)	-7 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	59,887,240.26
5 MI-MM	MATHEMATICAL MANIPULATIVES (MI-LOT 5)	-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	145,697,032.30
6 MP-DBS	DEVELOPED BASIC SCIKIT (MP-LOT 6)	-55 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	284,509,879.30
7 MP-DS&ME	DEVELOPED SCIENCE AND MATHEMATICS EQUIPMENT (MP-LOT 7)	-15 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	193,348,384.08
8 MP-DSC	DEVELOPED STORAGE CABINET (MP-LOT 8)	-1 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	275,310,260.87
9 MI-C	CHEMICALS (MI-LOT 9)	-18 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	42,313,270.72
10 MI-GLT	GLASSWARES AND LAB TOOLS (MI-LOT 10)	-30 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	61,969,935.83

11 MI-SDIMTM	SCIENCE DEVICES, INSTRUMENTS AND MEASURING TOOLS- MATTER (MI-LOT 11)	-15 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	91,304,938.89
12 MI- SDIMTESLT	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS – EARTH & SPACE AND LIVING THINGS (MI-LOT 12)	-25 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	315,088,579.57
13 MI-MM	MATHEMATICAL MANIPULATIVES (MI-LOT 13)	-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	155,240,109.04
14 MI-MTI	MATHEMATICAL TOOLS AND INSTRUMENT (MI- LOT 14)	-16 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	177,776,266.83
15 MI-M:EHB	MODELS: EARTH AND OTHER HEAVENLY BODIES (MI-LOT 15)	-12 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	160,228,602.33
16 MI-M:HA	MODELS: THE HUMAN ANATOMY (MI-LOT 16)	-14 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	90,711,056.44
17 MI-M:BSS	MODELS: OTHER BIOLOGICAL STRUCTURES AND SPECIES (MI-LOT 17)	-10 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	64,863,982.79
18 MI-M:MG	MODELS: MOLECULAR GEOMETRY (MI-LOT 18)	-6 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	51,006,144.41
19 MI-FMEK	FORCE, MOTION AND ENERGY KITS (MI-LOT 19)	-48 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document	161,933,943.69
TOTAL			2,674,368,291.92

The bidder shall be required to submit bids for all items in the lot. In the event of any incomplete bids for the items in the lot, the bidder will be **disqualified**.

19.5

The computation of a prospective bidder's NFCC must be at least equal to the ABC to be bid, calculated as follows:

NFCC – [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started

The values of the domestic bidder's current assets and current liabilities shall be based on the latest Audited Financial Statements submitted to the BIR.

For purposes of computing the foreign bidders' NFCC, the value of the

	<p>current assets and current liabilities shall be based on their Audited Financial Statements prepared in accordance with international financial reporting standards. (23.5.1.4a)</p> <p>If the prospective bidder submits a committed Line of Credit, it must be at least equal to ten percent (10%) of the ABC of the lots bid for: Provided, that if the same is issued by a foreign Universal or Commercial Bank, it shall be confirmed or authenticated by a local Universal or Commercial Bank.</p> <p>In any case, the NFCC computation or committed line of credit, must be sufficient for all the lots or contracts bid for. The NFCC computation shall be in accordance with the prescribed form.</p> <p>In case of a foreign joint venture, the NFCC shall be computed based on the Audited Financial Statements of the LOCAL LEAD PARTNER, <u>unless it is shown by clear proof that the other partners to the joint venture have infused capital investment to support the operation of the local lead partner to ensure compliance with the obligations under the contracts in this project, in which case the NFCC of the foreign joint venture or the minority partner of the joint venture shall be computed.</u></p> <p>For this purpose, the local lead partner shall be that person/organization/company identified in the Joint Venture Agreement or in the Letters of Intents (for potential JV partners) shown to have the controlling stakes in the JV.</p> <p>For easier reference, participating JVs or prospective JV partners must indicate in their JVAs or Letters of Intent the local lead partner appointed by them.</p>
20.1	<p>Within a non-extendible period of five (5) calendar days from receipt by the bidder of the notice from the BAC that it submitted the LCB, the Bidder shall submit the following requirements:</p> <p>a. Latest income and business tax returns: Printed copies of the Electronically filed Income Tax and Business Tax Returns with copies of their respective Payment Confirmation Forms for the immediately preceding calendar/tax year from the authorized agent bank;</p> <p>Only tax returns filed and taxes paid through the BIR Electronic Filing and Payment System (EFPS) shall be accepted.</p> <p><i>NOTE: The latest income and business tax returns are those within the last six months preceding the date of bid submission.</i></p> <p>b. To ensure the safety, efficacy, or quality of products and if the law requires that a certain product shall pass the requirements of the regulatory body, bidders shall submit certificates, licenses, or other documents issued by such regulatory agency or other accredited</p>

certifying body, such as but not limited to, FDA certificate for food and drugs, NTC for electronics equipment and the like;

- c. Bidders are also required to include an ISO Certificate; and
- d. Other appropriate licenses and permits required by law and stated in the **BDS**.

During post-qualification, upon demand by the BAC or its representative(s), a bidder with the lowest calculated bid shall be able to present/submit the following:

- a. Documents to verify or support its Statement of On-going and/ or Statement identifying its Single Largest Completed Contract which may consist of the following: appropriate and clear duly signed contracts, purchase orders, agreements, notices of award, job orders, or notices to proceed, with the corresponding duly signed certificate of completion, delivery receipts, inspection and acceptance reports, certificates of final acceptance or official receipts.
- b. For validation purposes, original copy Class "A" Eligibility documents.
- c. Certified true copy documents as issued by the certifying/authorized agencies.

During post-qualification, compliance of the goods offered with the requirements specified in this bidding document shall be determined, including the following:

- i. **As per Section 34.3, b.ii, item a, of the IRR of R.A. 9184**, verification of availability and commitment, and/or inspection and testing for the required capacities and operating conditions, of equipment units to be owned/leased/under purchase by the bidder for use in the contract under bidding, as well as checking the performance of the bidder in its ongoing government and private contracts, if any of these ongoing contracts shows:
 - a. Negative slippage of at least fifteen percent (15%) in any one project or a negative slippage of at least ten percent (10%) in each of two (2) or more contracts;
- ii. **As per Section 34.3, b.iii, items a to c, of the IRR of R.A. 9184**, verification and/or inspection and testing of the goods/product, aftersales and/or maintenance capabilities, in applicable cases, as well as checking the following:
 - a. Delay in the partial delivery of goods amounting to ten percent (10%) of the contract price in its ongoing government and private contracts;
 - b. If any of these contracts shows the bidder's failure to deliver or perform any or all of the goods or services within the period(s) specified in the contract or within any extension

thereof granted by the Procuring Entity pursuant to a request made by the supplier prior to the delay, and such failure amounts to at least ten percent (10%) of the contract price; or

- c. Unsatisfactory performance of the supplier's obligations as per contract terms and conditions at the time of inspection.

If the BAC verifies any of these deficiencies to be due to the bidder's fault or negligence, the BAC shall disqualify the bidder from the award, for the procurement of goods.

In case of foreign bidders, a Certificate of Authentication from the Department of Foreign Affairs shall be required for each document submitted, i.e. the Class "A" documents or its equivalent that are written in foreign language, translated to English, and duly authenticated by the appropriate Philippine foreign service establishment/post or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines.

To facilitate post-qualification, the bidder at its option may submit in advance, i.e., on the deadline for submission and receipt of bids, above requirements and other documents required in *Section II. ITB 20.1*.

The envelope shall be placed in a **brown** envelope and marked:

ITB 20.1 Documents

Name of Project: _____

Bid Opening Date: _____

Name of Bidder: _____

Failure to submit above requirements within the required timeframe or a finding against the veracity of any such documents or other documents submitted for the project shall be a ground for disqualification of the bidder for the award and the enforcement of the bid securing declaration.

Submission of Samples:

In addition to the documentary requirements to be submitted during post-qualification as provided under ITB Clause 20.1, **the bidder(s) with the Lowest Calculated Bid(s) for Lots 1 to 19 shall submit ONE sample item/unit for all the items within the lot(s) bid for, consistent with their actual offer as indicated in their bid.** However, the bidder may provide a sample of better or superior quality, which, if accepted, shall be the reference for award, contract, prospection and eventual delivery.

These samples shall be subjected to evaluation during post-qualification. The Technical Working Group (TWG) shall evaluate the said samples to determine compliance with the required technical specifications subject to the approval of the Bids and Awards Committee (BAC).

Failure of the samples to meet DepEd technical specifications shall be a ground for disqualification of the bidder/s.

Please refer to **Annex "D"** for the **Inspection and Test Protocol** of the Mass Production items and Market Items. In case the item will be

	<p>manufactured from abroad, the bidder may submit its list of equipment and a video showing the manufacturer's plant and equipment from abroad to prove the bidder's capability to manufacture the item.</p>
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Please refer to **Annex "E"** for the **Quality Assurance Procedure during Contract Implementation**.

Please refer to **Annex "F"** for the **minimum tools and equipment** required for the awarding of Mass Production.

***Section IV. General Conditions of
Contract***

1. **Scope of Contract**

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract are provided in the **Special Conditions of Contract (SCC)**.

2. **Advance Payment and Terms of Payment**

2.1. Advance payment of the contract amount is provided under Annex “D” of the 2016 revised IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. **Performance Security**

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

4. **Inspection and Tests**

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section VII (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in

a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

- 5.1. In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 5.2. The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
1	<p>Delivery and Documents –</p> <p>For purposes of the Contract, “EXW,” “FOB,” “FCA,” “CIF,” “CIP,” “DDP” and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows:</p> <p>The delivery terms applicable under this Contract shall be DDP (Duties Delivered Paid) in accordance with INCOTERMS. Risk and title to the goods shall pass from the Supplier to DepEd upon receipt and final acceptance of the goods at the designated delivery site (Schools).</p> <p>The goods to be delivered by the Supplier must be in accordance with the Technical Specifications and other requirements indicated in the bidding documents, and/or as may be reasonably deemed necessary to effect the full and timely delivery of the goods.</p> <p>For purposes of this Clause, the representative of the Department of Education (DepEd) at the delivery site shall be the Authorized Representative (School Head) and the designated Inspectorate Team.</p> <p>Upon delivery of the goods to the delivery site (Door-to-Door), the Supplier shall notify DepEd and present the following documents:</p> <ol style="list-style-type: none"> 1. Original and four copies of the Supplier’s invoice showing goods’ description, quantity, unit price, and total amount; 2. Original and four copies of the Manufacturer’s and/or Supplier’s Warranty Certificate, where applicable; 3. Original (white copy) and scanned copy stored in CD/DVD/Flash Drive of the pre-numbered Inspection and Acceptance Report (IAR) and Delivery Receipt (DR) detailing number and description of goods received and duly signed and dated by the ARP. <p>In case the Supplier encounters conditions impeding timely delivery of the goods, it must promptly notify DepEd in writing within five (5) calendar days from notice of such conditions, and any request for work suspension and/or contract period extension shall be promptly done in writing as soon as circumstances for such requests have become apparent. The Supplier must provide sufficient proof to support any request for work suspension and/or contract period extension.</p> <p>Incidental Services –</p> <p>The Supplier is required to provide all of the following services, including additional services, if any, as follows:</p>

- a. Performance or supervision of on-site assembly and/or start-up of the supplied Goods;
- b. Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
- c. Performance, supervision, maintenance and/or repair of the supplied goods for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligation; and
- d. Provision of training video for various items with training component.

However, assembly, installation, start-up and/or commissioning of items, in cases where they are necessary, shall remain to be the responsibility and for the account of the supplier notwithstanding inspection and acceptance at its premises. In case of failure of Supplier to do this/these, DepEd may call upon the Supplier's warranty so that the assembly, installation, start-up and/or commissioning shall be undertaken by DepEd. In any case, the Supplier shall provide written manuals and tutorial videos for installation, commissioning, start-up, assembly, use and maintenance of the items delivered.

Spare Parts –

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- a. such spare parts as the DepEd may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract;
- b. in the event of termination of production of the spare parts:
 - i. advance notification to the DepEd of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and
 - ii. following such termination, furnishing at no cost, to the DepEd, the blueprints, drawings, and specifications of the spare parts, if requested.

Packaging –

The Supplier shall provide such packaging as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt, and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided, including additional requirements, if any, specified below, and in any subsequent instructions ordered by DepEd:

Additional Instructions to Supplier:

- The following must appear on the exterior of the packages/boxes:
 - DepEd Logo
 - Project Name **“Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023”**
 - Items inside (name, general description, quantity)
 - Supplier’s name and contact details

Packaging should be according to the allocation list per school.

- Refer to DO 21, s.2021 for reference.

For mass production of cabinets, the Supplier must ensure that the items are properly sealed, complete, properly packaged (where applicable, must be **knocked-down** (i.e. disassembled) suitable for easier hauling, transport and storage) upon delivery to the designated area to perform the formal acceptance of the items by the recipient school, as the case may be.

Insurance –

The goods under this Contract shall be fully insured by the Supplier in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery. The goods remain at the risk and title of the Supplier until their final acceptance by DepEd.

Transportation –

Transport of the goods shall be arranged by the Supplier, and related costs shall be included in the contract price.

DepEd accepts no liability for the damage of goods during transit. Risk and title to the goods will not be deemed to have passed to DepEd until its receipt and final acceptance at the final destination, through its authorized receiving personnel.

Intellectual Property Rights –

The Supplier shall indemnify DepEd against all third-party claims of infringement of patent, trademark, or industrial design rights arising from the use of the goods or any part thereof.

2.2	<p>Schedule of Payment</p> <p>The method and conditions of payment to be made to the Supplier through</p>
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the Government disbursement procedure within sixty (60) days upon submission of the billing request with complete supporting documents under this Contract shall be as follows:

Advance Payment

An advance payment not to exceed fifteen percent (15%) of the contract amount shall be allowed and paid within 60 calendar days from the signing of the contract. An irrevocable letter of credit or bank guarantee of an equivalent amount must be submitted and shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.

For the progress payment, the Supplier shall be paid upon delivery to at least 25% of the recipient schools with complete goods and acceptance of the same by an authorized representative of DepEd.

The Supplier may submit a request for payment based on progress reports which shall be attached to the progress billing and include the following:

1. quantity of goods delivered based on the schedule of delivery and other relevant terms and conditions of the contract;
2. duly signed Delivery Receipts;
3. duly signed Inspection and Acceptance Reports, including certification by Supplier, as approved by the duly authorized DepEd representative (School Head), that the goods have been delivered and/or properly installed and commissioned in accordance with the contract;

Other documents in support of a request for payment may be required by DepEd pursuant to existing disbursement, accounting and auditing rules and procedures.

(NOTE: The Supplier must furnish a copy of the above-mentioned documents to DepEd Accounting and the End-user [Bureau of Learning Resources - Cebu (BLR-Cebu)] and the Contract Management Division of the Procurement Service, Central Office).

Payments shall be subject to the Warranty provision in the form of either retention money in an amount equivalent to three percent (3%) of every progress payment, or a special bank guarantee in the amount equivalent to three percent (3%) of the Contract Price as provided under Section 62.1 of R.A. 9184 and its Revised IRR.

Final payment

Final payment shall consist of the full and final payment of the unpaid inspected and accepted goods, subject to the submission of the required documents under the Bidding Documents.

Release of retention money shall be at the expiration of the warranty period, or the remaining amount in case it has been utilized pursuant to the warranty provision.

3	<p>Performance Security</p> <p>The Performance Security shall be posted in favor of DepEd, and shall be forfeited in the event it is established that the Supplier is in default of any of its obligation under the contract. The Supplier shall be responsible for the extension of its performance security and/or renewal of its performance security whenever necessary and/ without need of prior notice or instruction from DepEd, to ensure that it is in force and effect for the whole duration of the contract delivery period and until a Certificate of Final Acceptance is duly issued.</p> <p>Performance Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation, superimposition, or alteration affects any material information, or feature of the document.</p>
4	<p>Inspection</p> <p>Inspection or pre-delivery inspection (PDI), where applicable for goods to be delivered, shall be conducted by DepEd through the duly designated Inspectorate Team. The inspection or PDI shall be made upon notice to the DepEd of the readiness of the goods for inspection.</p> <p>In case the inspection of goods will be conducted by the designated Inspectorate Team of the DepEd Central Office, the Supplier shall coordinate with DepEd, through the Procurement Management Service-Contract Management Division (ProcMS-CMD), on the conduct of inspection or pre-delivery inspection (PDI). Any request for inspection or PDI shall be done in writing, and contain the following information:</p> <ul style="list-style-type: none"> a. Project Title and Contract Number; b. Specific goods for inspection; c. Quantity of goods for inspection; d. Venue/Address of inspection site; and e. Proposed schedule of inspection which must be at least ten (10) calendar days from the submission of the letter request. <p>The request for inspection or PDI shall be addressed to ProcMS-CMD, and must be submitted through email at procms.cmd@deped.gov.ph.</p> <p>Pre-delivery and Pre-implementation Conference shall be conducted prior to the inspection of goods by the designated DepEd Inspectorate Team, as may be necessary or applicable.</p> <p>Prior to and for purposes of inspection, the Supplier shall ensure convenient access to the goods for inspection. The Supplier shall assign personnel to undertake the handling, unpacking, assembly, commissioning, disassembly, repacking, resealing, and sorting of the goods prior to, during, and after the inspection.</p> <p>DepEd shall have the right to visit and inspect the Supplier's premises covered by the Contract, at any time or stage of contract implementation, to monitor and assess the Supplier's capacity to discharge its contractual obligations.</p>

	<p>Goods with defects or non-compliant with the required technical specifications upon delivery shall be rejected, orally or in writing, by DepEd and replaced by the Supplier in accordance with the warranty provision of this bidding document. The Supplier shall replace all rejected goods within five (5) calendar days from its receipt of the Notice of Rejection from the recipient schools. The replacement goods shall be subject to re-inspection.</p> <p>Goods are considered defective when they are unfit for the use for which it is intended or its fitness for such use is diminished to such an extent that, had DepEd been aware thereof, it would not have acquired it or would have given a lower price for it.</p> <p>Defects in the goods can either be patent or latent. A patent defect is one that is apparent to the buyer or normal observation. It is an apparent or obvious defect. On the other hand, a latent defect is one that is not apparent to the buyer by reasonable observation. A latent defect is hidden or one that is not immediately determinable.</p>
5	<p>Warranty</p> <p>A one-year comprehensive warranty for the non-expendable goods, and three months for the expendable goods will be applied. The said warranty period shall reckon from the date of issuance of the Certificate of Final Acceptance by the DepEd that the delivered Goods have been duly inspected and accepted (i.e. final acceptance).</p> <p>Payments shall be subject to the Warranty provision in the form of either retention money in an amount equivalent to three percent (3%) of every progress payment, or a special bank guarantee in the amount equivalent to three percent (3%) of the Contract Price as provided under Section 62.1 of R.A. 9184 and its Revised IRR.</p> <p>Replacement and/or repair of the goods may be requested within 360 calendar days for non-expendable goods, and 90 calendar days for expendable goods, from the date of acceptance of goods by DepEd. Replacement and/or repair of the goods shall be made within 30 calendar days upon claim or request therefor.</p> <p><i>See attached Annex “G” for the Warranty Period per item.</i></p> <p>In case the Supplier opts for retention money, the amount shall only be released after the lapse of the entire warranty period, unless during the remainder of the warranty period, the retention money is substituted with a special bank guarantee as prescribed above.</p> <p>The Special Bank Guarantee shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation, superimposition, or alteration affects any material information, or feature of the document.</p>

***Section VI. Schedule of
Requirements***

A. List/Description of Goods /Services

The delivery schedule expressed below stipulates the date of delivery to the project site.

Lot No.	Item No.	Description	Total Quantity/ Unit of Issue	Delivery Period
I. MASS PRODUCTION ITEMS				
1	BLR-DEVELOPED STORAGE CABINETS			within 120 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	BLR-developed Storage Cabinet	10,804 pc	
II. SCIENCE AND MATHEMATICS EQUIPMENT (MARKET ITEMS)				
2	CHEMICALS			within 120 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Benedict's Solution, 100ml/bottle	3,997 bot	
	2	Boric Acid, 100 grams / bottle	3,997 bot	
	3	Bromothymol Blue	3,222 bottle	
	4	Calcium Chloride, 100 grams / bottle	3,997 bot	
	5	Chemicals Storage Box	3,997 pc	
	6	Copper Sulfate, CuSO ₄ , 100 grams / bottle	3,997 bot	
	7	Gentian Violet, 100 ml / bottle	3,222 botte	
	8	Iodine Solution, 100 ml / bottle	3,350 bottle	
	9	Magnesium Ribbon, 25 grams, 1 roll	3,997 roll	
	10	Manganese Dioxide, 50 grams / bottle	3,997 bottle	
	11	Microscope's Immersion Oil, 100mL/bot	3,222 bottle	
	12	Phenolphthalein, 100 grams/bottle	3,350 bottle	
	13	Potassium Chloride, 100 grams / bottle	3,997 bottle	
	14	Potassium Iodide, 100 grams / bottle	3,997 bottle	
	15	Sodium Hydroxide (Lye), 250 grams/bottle	3,997 bottle	
	16	Yeast, active dry, 100 grams / bottle	3,222 bottle	
	17	Zinc Chloride, 100 grams / bottle	3,997 bottle	
	18	Zinc metal, pellets/mossy, 100 grams / bottle	3,997 bottle	
3	GLASSWARES AND LAB TOOLS			within 120 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Beaker, borosilicate, 250 mL	37,270 pc	
	2	Beaker, borosilicate, 50 mL	19,985 pc	
	3	Burette, 10 mL capacity (acid)	640 pc	
	4	Burette, 10 mL capacity (base)	640 pc	
	5	Burner, Alcohol, glass, 150 ml. Capacity	37,270 pc	

	6	Burner, Bunsen	19,985	pc	
	7	Cork Stopper # 5 (for Ø 16mm test tube)	19,985	pc	
	8	Crucible with lid/cover	19,985	pc	
	9	Dish, Evaporating, 75 mL	37,270	pc	
	10	Distillation set-up: Condenser, Liebig-type	256	pc	
	11	Distillation set-up: Distilling Flask, borosilicate, 250ml,	256	pc	
	12	Double burette clamp	640	pc	
	13	Electrolysis Apparatus, student-type (Brownlee)	19,985	pc	
	14	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	74,540	pc	
	15	Funnel, borosilicate, fluted	37,270	pc	
	16	Glass Tubing, Ø 6 mm x Ø 4 mm x 1500 mm long	39,970	pc	
	17	Manometer, Open U-tube	640	pc	
	18	Mortar and Pestle, porcelain, 150 mL.	28,615	pc	
	19	Osmosis Apparatus	640	pc	
	20	Pipette, Beral, 1 mL	286,150	pc	
	21	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	3,875	pc	
	22	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	19,985	pc	
	23	Rubber Stopper # 0 (for Ø 16mm test tube)	19,985	pc	
	24	Spoon-spatula, porcelain and glazed	37,270	pc	
	25	Stirring Rod, Ø 6 mm x 250 mm long	37,270	pc	
	26	Test tube brush	37,270	pc	
	27	Test Tube, borosilicate, Ø 16 mm x 150 mm long	372,700	pc	
	28	Tong, Beaker	3,875	pc	
	29	Tong, Crucible	19,985	pc	
	30	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	186,350	pc	
	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - EARTH & SPACE and LIVING THINGS				within 120 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
4	1	Balance, Toploading, Electronic	775	unit	
	2	Centrifuge	128	set	
	3	Electrical Conductivity (Conductivity of Solutions) Apparatus	16,750	unit	
	4	Laboratory Hot Plate with magnetic stirrer	3,350	unit	
	5	Microscope, Digital	775	pc	
	6	Soil pH, Moisture, Sunlight Meter	3,875	set	
	7	Telescope, Astronomical (Reflecting)	775	kit	
5	MATHEMATICAL MANIPULATIVES				within 120 Calendar Days from the date of receipt of the Notice to

			Proceed (NTP)
1	Algebra Tile Set, plastic	3,222 set	
2	Base Ten Blocks	17,285 set	
3	Bea	1,731 set	
4	Circle Area Demonstrator	3,457 pcs	
5	Compass, Drawing, student type	267,160 pcs	
6	Cuisenaire Rods, set of 5	3,457 set	
7	Elapsed Time (Clock) Set	1,731 pcs	
8	Geoboard, 11 x 11	66,790 pcs	
9	Geoboard, 5 x 5	34,570 pcs	
10	Geostrips	33,395 set	
11	Ghost Grid Whiteboard, Mobile Magnetic	23,148 pcs	
12	Linking Cubes	17,285 set	
13	Model, Basic 3D Geometrical Collapsible	8,950 set	
14	Model, Basic 3D Geometrical Solids	3,457 set	
15	Pattern Blocks, 250 pcs/set	6,914 set	
16	Pentominoes	17,285 set	
17	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	8,655 set	
18	Probability Kit	6,679 set	
19	Tangrams, set of 30	6,679 set	

Lot No.	Item No.	Description	Total Quantity/ Unit of Issue	Delivery Period
I. MASS PRODUCTION ITEMS				
6	BLR-DEVELOPED BASIC SCIKIT			within 270 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	BLR-developed Basic Scikit: Ø 9.5mm x 250mm long Stand Rod	65,240 pc	
	2	BLR-developed Basic Scikit: Ø 9.5mm x 500mm long Stand Rod	130,480 pc	
	3	BLR-developed Basic Scikit: Ø 12.7mm x 1000mm long Stand Rod	23,795 pc	
	4	BLR-developed Basic Scikit: Rail	47,590 lh	
	5	BLR-developed Basic Scikit: Ring with stem	32,620 pc	
	6	BLR-developed Basic Scikit: Test Tube Rack	32,620 pc	
	7	BLR-developed Basic Scikit: Wire Gauze	32,620 pc	
	8	BLR-developed SCIKIT BASIC 001: Stand Base	65,240 assy	
	9	BLR-developed SCIKIT BASIC 001: Stand Support	130,480 pcs	

10	BLR-developed SCIKIT BASIC 001: SCIKIT BASIC Storage Case 001 (With Cover and Base Sheathing)	6,524	pc
11	BLR-developed SCIKIT BASIC 002: Multiclamp	163,100	assy
12	BLR-developed SCIKIT BASIC 002: Test Tube Holder	32,620	pc
13	BLR-developed SCIKIT BASIC 002: SCIKIT BASIC Storage Case 002 (With Cover and Base Sheathing)	6,524	pc
14	BLR-developed SCIKIT BASIC 003: Universal Clamp	78,288	assy
15	BLR-developed SCIKIT BASIC 003: Universal Bosshead	65,240	assy
16	BLR-developed SCIKIT BASIC 003: SCIKIT BASIC Storage Case 003 (With Cover and Base Sheathing)	6,524	pc
17	BLR-developed Free Fall Apparatus (Mechanics 001): Ball Case (with Cover and foam)	22,855	pc
18	BLR-developed Free Fall Apparatus (Mechanics 001): Digital Timer Assembly (Digital Stopwatch)	22,855	assy
19	BLR-developed Free Fall Apparatus (Mechanics 001): Metertape with hooks and plastic pointer	22,855	assy
20	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 12.7mm Steel Spherical Ball	45,710	pc
21	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Plastic Spherical Ball with metal screw	45,710	pc
22	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Steel Spherical Ball	45,710	pc
23	BLR-developed Free Fall Apparatus (Mechanics 001): Pad Switch Assembly	22,855	assy
24	BLR-developed Free Fall Apparatus (Mechanics 001): Solenoid Assembly	22,855	assy
25	BLR-developed Free Fall Apparatus (Mechanics 001): Synchro Box Assembly	22,855	assy
26	BLR-developed Free Fall Apparatus (Mechanics 001): SCIKIT MECHANICS Storage Case 001 (With Cover and Base Sheathing)	22,855	pc
27	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-spring loaded	23,795	unit
28	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-with counterweight	23,795	unit

29	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cylindrical Mass, 50-gram	118,975	pc
30	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Driving Mass, 3-gram	118,975	pc
31	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Leveling Pad Assembly	23,795	assy
32	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Plastic Hammer	23,795	pc
33	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Modelling Clay, 1 bar/set	23,795	bar
34	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Stopper-Fork Assembly	23,795	assy
35	BLR-developed Dynamics Carts-Rail System (Mechanics 002): String (thin), 1 ball/set	23,795	ball
36	BLR-developed Dynamics Carts-Rail System (Mechanics 002): SCIKIT MECHANICS Storage Case 002 (With Cover and Base Sheathing)	23,795	pc
37	BLR-developed SCIKIT MECHANICS 003: 10-Newton Spring Balance	31,680	assy
38	BLR-developed SCIKIT MECHANICS 003: 250-gram Hooked Mass	63,360	pc
39	BLR-developed SCIKIT MECHANICS 003: 500-gram Hooked Mass	31,680	pc
40	BLR-developed SCIKIT MECHANICS 003: Axle and Lever Beam	31,680	assy
41	BLR-developed SCIKIT MECHANICS 003: Double Pulley	63,360	assy
42	BLR-developed SCIKIT MECHANICS 003: Dry Cell, AA 1.5V	45,710	pc
43	BLR-developed SCIKIT MECHANICS 003: Friction Block and Friction Board	8,935	set
44	BLR-developed SCIKIT MECHANICS 003: Leveling Hose	22,855	lh
45	BLR-developed SCIKIT MECHANICS 003: Motorized Cart	22,855	unit
46	BLR-developed SCIKIT MECHANICS 003: Single Pulley	63,360	assy
47	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear B	45,710	pc
48	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear C	22,855	pc

	49	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm Gear A	45,710	pc	
	50	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm with Axle	22,855	assy	
	51	BLR-developed SCIKIT MECHANICS 003: String (thick), 1 ball/set	110	ball	
	52	BLR-developed SCIKIT MECHANICS 003: SCIKIT MECHANICS Storage Case 003 (With Cover and Base Sheathing)	31,680	pc	
	53	BLR-developed: User's Manual (SCIKIT BASIC)	6,524	pc	
	54	BLR-developed: User's Manual (SCIKIT MECHANICS)	6,524	pc	
	55	BLR-developed: Experiment Module (SCIKIT MECHANICS)	6,524	pc	
	BLR-developed SCIENCE AND MATHEMATICS EQUIPMENT (Elem, JHS, & SHS)				within 270 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
7	1	BLR-developed Blackboard Compass	8,038	pc	
	2	BLR-developed Blackboard Protractor	8,038	pc	
	3	BLR-developed Convection Tank (Thermocline Apparatus)	22,745	pc	
	4	BLR-developed Fresh Water Aquarium with Stand	1,765	pc	
	5	BLR-developed Heat Conductivity Apparatus	31,680	pc	
	6	BLR-developed Light Source (Single Slit)	23,795	pc	
	7	BLR-developed Set of Coils (Transformer)	22,855	set	
	8	BLR-developed Variable Power Supply with 5 pcs. Terminal Board	22,855	set	
	9	BLR-developed: Fraction Set	17,445	set	
	10	BLR-developed: Linear Pair/Angle Demonstrator	31,570	pc	
	11	BLR-developed: Manipulative Electricity Consumption Meter Model, blackboard	1,765	pc	
	12	BLR-developed: Manipulative Water Consumption Meter Model, blackboard	1,765	pc	
	13	BLR-developed: Models of 7-sided to 12-sided Regular Polygons	17,650	set	
	14	BLR-developed: Number Blocks	8,620	set	
	15	BLR-developed: Place Value Chart with decimal pockets	1,765	pc	
8	BLR-DEVELOPED STORAGE CABINETS				within 270 Calendar Days from the date of receipt of the Notice to Proceed (NTP)

	1	BLR-developed Storage Cabinet	12,819	pc		
II. SCIENCE AND MATHEMATICS EQUIPMENT (MARKET ITEMS)						
9	CHEMICALS					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Benedict's Solution, 100ml/bottle	4,759	bot		
	2	Boric Acid, 100 grams / bottle	4,759	bot		
	3	Bromothymol Blue	4,549	bottle		
	4	Calcium Chloride, 100 grams / bottle	4,759	bot		
	5	Chemicals Storage Box	4,759	pc		
	6	Copper Sulfate, CuSO ₄ , 100 grams / bottle	4,759	bot		
	7	Gentian Violet, 100 ml / bottle	4,549	botte		
	8	Iodine Solution, 100 ml / bottle	4,571	bottle		
	9	Magnesium Ribbon, 25 grams, 1 roll	4,759	roll		
	10	Manganese Dioxide, 50 grams / bottle	4,759	bottle		
	11	Microscope's Immersion Oil, 100mL/bot	4,549	bottle		
	12	Phenolphthalein, 100 grams/bottle	4,571	bottle		
	13	Potassium Chloride, 100 grams / bottle	4,759	bottle		
	14	Potassium Iodide, 100 grams / bottle	4,759	bottle		
	15	Sodium Hydroxide (Lye), 250 grams/bottle	4,759	bottle		
	16	Yeast, active dry, 100 grams / bottle	4,549	bottle		
	17	Zinc Chloride, 100 grams / bottle	4,759	bottle		
	18	Zinc metal, pellets/mossy, 100 grams / bottle	4,759	bottle		
10	GLASSWARES AND LAB TOOLS					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Beaker, borosilicate, 250 mL	41,240	pc		
	2	Beaker, borosilicate, 50 mL	23,795	pc		
	3	Burette, 10 mL capacity (acid)	110	pc		
	4	Burette, 10 mL capacity (base)	110	pc		
	5	Burner, Alcohol, glass, 150 ml. Capacity	41,240	pc		
	6	Burner, Bunsen	23,795	pc		
	7	Cork Stopper # 5 (for Ø 16mm test tube)	23,795	pc		
	8	Crucible with lid/cover	23,795	pc		
	9	Dish, Evaporating, 75 mL	41,240	pc		
	10	Distillation set-up: Condenser, Liebig-type	44	pc		
	11	Distillation set-up: Distilling Flask, borosilicate, 250ml,	44	pc		
	12	Double burette clamp	110	pc		
	13	Electrolysis Apparatus, student-type (Brownlee)	23,795	pc		

	14	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	82,480	pc
	15	Funnel, borosilicate, fluted	41,240	pc
	16	Glass Tubing, Ø 6 mm x Ø 4 mm x 1500 mm long	47,590	pc
	17	Manometer, Open U-tube	110	pc
	18	Mortar and Pestle, porcelain, 150 mL.	32,620	pc
	19	Osmosis Apparatus	110	pc
	20	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	1,050	pc
	21	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	23,795	pc
	22	Rubber Stopper # 0 (for Ø 16mm test tube)	23,795	pc
	23	Spoon-spatula, porcelain and glazed	41,240	pc
	24	Stirring Rod, Ø 6 mm x 250 mm long	41,240	pc
	25	Test tube brush	41,240	pc
	26	Test Tube, borosilicate, Ø 16 mm x 150 mm long	412,400	pc
	27	Tong, Crucible	23,795	pc
	28	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	206,200	pc
	29	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	206,200	pc
	30	Watch Glass, Ø 90 mm	41,240	pc
	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - MATTER			
11	1	Balance, Toploading, Electronic	210	pc
	2	Balance, Triple Beam, with tare, 2610-gram	22,745	pc
	3	Calorimeter	110	pc
	4	Centrifuge	22	pc
	5	Electrical Conductivity (Conductivity of Solutions) Apparatus	22,855	pc
	6	Filter Paper, crepe, 580mm x 580 mm sheet, Grade 0905	65,240	sheet
	7	Gloves, Hand, super nitrile	41,240	pair
	8	Graduated Cylinder, borosilicate, 10 mL	32,620	pc
	9	Graduated Cylinder, borosilicate, 100 mL	32,620	pc
	10	Graduated pipette with rubber pipettor, borosilicate, 10 mL	110	pc
	11	Hydrometer for heavy liquids	110	pc
	12	Hydrometer for light liquids	110	pc
	13	Laboratory Hot Plate with magnetic stirrer	4,571	pc
	14	Safety Goggles, polycarbonate	41,240	pair
	15	Thermometer, Laboratory type, Alcohol, -20°C to 110°C	41,240	pc

12	SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - EARTH & SPACE and LIVING THINGS				within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Anemometer with Wind Vane, Cup type	6,978	unit	
	2	Anemometer, Simple	3,489	set	
	3	Aneroid Barometer Set (Demonstration Type)	40,190	unit	
	4	Aneroid Barometer, wall-mount	8,038	unit	
	5	Compass, Magnetic	31,570	pc	
	6	Dissecting Set with pan	110	set	
	7	First Aid Kit	1,765	kit	
	8	Gloves, Surgical	220	pairs	
	9	Hand Lens, 10x magnification	1,050	pc	
	10	Hand Lens, 5x magnification	17,555	pcs	
	11	Hexagonal Weigh Dishes Set, 50mL, 500 pcs/pack	3,489	packs	
	12	Lens Paper, 50's/pack	22,745	packs	
	13	Microscope, Compound with 4 Objectives	90,980	units	
	14	Microscope, Digital	210	unit	
	15	Pipette, Beral, 1 mL	326,200	pcs	
	16	Prepared Slide Set, Microscope, 25 pieces	4,759	set	
	17	Prepared Slide Set, Mitosis and Meiosis	4,549	set	
	18	Reaction Plates with 6 Wells	23,795	pc	
	19	Sedimentator Tube	1,050	pc	
	20	Sling Psychrometer	8,825	unit	
	21	Soil pH, Moisture, Sunlight Meter	1,050	unit	
	22	Soil/Test Sieve*	1,765	set	
	23	Thermometer, Classroom, wall-mount	1,765	pc	
	24	Tong, Beaker	1,050	pcs	
25	Wash Bottle, plastic, 250 mL	41,240	pcs		
13	MATHEMATICAL MANIPULATIVES				within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Algebra Tile Set, plastic	4,549	set	
	2	Base Ten Blocks	17,445	set	
	3	Beads	1,724	set	
	4	Circle Area Demonstrator	3,489	pcs	
	5	Compass, Drawing, student type	321,520	pcs	
	6	Cuisenaire Rods, set of 5	3,489	set	
	7	Elapsed Time (Clock) Set	1,724	pcs	
	8	Geoboard, 11 x 11	80,380	pcs	
	9	Geoboard, 5 x 5	34,890	pcs	
	10	Geostrips	40,190	set	
	11	Ghost Grid Whiteboard, Mobile Magnetic	26,096	pcs	
	12	Linking Cubes	17,445	set	
	13	Model, Basic 3D Geometrical Collapsible	8,825	set	

	14	Model, Basic 3D Geometrical Solids	3,489	set		
	15	Pattern Blocks, 250 pcs/set	6,978	set		
	16	Pentominoes	17,445	set		
	17	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	8,620	set		
	18	Probability Kit	8,038	set		
	19	Tangrams, set of 30	8,038	set		
14	MATHEMATICAL TOOLS & INSTRUMENT					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Balance, Double-pan	17,445	pcs		
	2	Blackboard Triangle, 30° x 60° and 45° x 45°	6,314	set		
	3	Calculator, Graphing, non-projectable	23,795	pcs		
	4	Calculator, Scientific	260,960	pcs		
	5	Digital Clock, tabletop	1,724	pcs		
	6	Measuring Kit (Volume)	1,724	set		
	7	Meterstick, plastic	160,760	pcs		
	8	Protractor, student-type	321,520	pcs		
	9	Ruler, Plastic, 12 inches/30 cm	322,400	pcs		
	10	Scale, Spring, Hanging type	1,724	pcs		
	11	Scale, Weighing, analog, 10 kg. capacity	1,724	pcs		
	12	Scale, Weighing, bathroom-type	1,724	pcs		
	13	Stopwatch, digital	41,240	pcs		
	14	Tape Measure, 1.5 meters	160,760	pcs		
	15	Template, shapes	17,445	pcs		
	16	Thermometer, Clinical, digital	8,825	pc		
15	MODELS: EARTH AND OTHER HEAVENLY BODIES					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Globe, Celestial	32,620	unit		
	2	Globe, Terrestrial	31,570	unit		
	3	Landform Demonstration Kit	23,795	kit		
	4	Model, Earth Internal Structure, 1/4 part detachable	4,759	unit		
	5	Model, Seismograph	22,745	unit		
	6	Model, Solar System	210	unit		
	7	Model, Sun Internal Structure, 1/4 part detachable	4,759	unit		
	8	Model, Sun-Earth-Moon	32,620	unit		
	9	Model, Tectonics Demonstrator	4,759	kit		
	10	Model, Volcano, cross section	23,795	unit		
	11	Rock Samples, 24 pcs/set, (minerals of 3 rock types)	420	set		
	12	Telescope, Astronomical (Reflecting)	210	unit		
16	MODELS: THE HUMAN ANATOMY					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)

	1	Model, Human Brain	1,765	unit		
	2	Model, Human Circulatory System	6,314	unit		
	3	Model, Human Ear	1,724	unit		
	4	Model, Human Endocrine System	4,549	unit		
	5	Model, Human Eye, 6 parts	1,724	unit		
	6	Model, Human Nervous System	6,314	unit		
	7	Model, Human Nose (Nasal-Throat Anatomy)	1,724	unit		
	8	Model, Human Skeleton	1,765	unit		
	9	Model, Human Torso	6,524	unit		
	10	Model, Lung Demonstration	1,765	unit		
	11	Model, Pumping Heart	1,765	unit		
	12	Model, Reproductive System, Female (Pelvic Anatomy)	6,314	unit		
	13	Model, Reproductive System, Male	6,314	unit		
	14	Model, Skin Block	3,489	unit		
17	MODELS: OTHER BIOLOGICAL STRUCTURES AND SPECIES					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Model, Animal Cell	4,571	pc		
	2	Model, Animal Meiosis	4,571	set		
	3	Model, Animal Mitosis	4,571	set		
	4	Model, Chloroplast	4,571	unit		
	5	Model, DNA	4,549	unit		
	6	Model, Invertebrates	1,765	set		
	7	Model, Mitochondrion	4,571	unit		
	8	Model, Plant Cell	4,571	unit		
	9	Model, Vertebrates	3,489	set		
10	Protein Synthesis Demonstration Set	4,549	set			
18	MODELS: MOLECULAR GEOMETRY					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Model, Atomic Orbital Kit	110	set		
	2	Model, Biochemistry Molecular, (262 atom parts)	9,518	set		
	3	Model, Crystal Structures Set (Graphite, diamond, sodium chloride, carbon dioxide)	9,518	set		
	4	Model, Molecular, Inorganic/Organic (307-pc)	9,518	pcs		
	5	Model, Sublevel Orbitals of the Atom (Quantum)	23,795	pcs		
6	Model, VSEPR, 14 shapes (50-pc)	23,795	pcs			
19	FORCE, MOTION, AND ENERGY KITS					within 210 Calendar Days from the date of receipt of the Notice to Proceed (NTP)
	1	Advanced Electromagnetism Kit	110	kit		
	2	Air Blower	22	pc		
	3	Archimedes Principle Set	110	set		

4	Basic Electronics Kit	110	kit
5	Basic Lens Set, acrylic	22,855	pc
6	Coefficient of Linear Expansion	110	pc
7	Connector, Black (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	120,900	pc
8	Connector, Red (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	120,900	pc
9	Connector, Yellow (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	91,420	pc
10	DC Ammeter	22,855	unit
11	DC String Vibrator, string included	1,050	pc
12	DC Voltmeter	22,855	unit
13	Diffraction slits & Diffraction grating Set	22,745	set
14	Digital Geiger-Muller Counter with radioisotopes samples	20	pc
15	Dry Cell Holder (size D)	161,200	pc
16	Dry Cell, 1.5 volts, size D	161,200	pc
17	Engine Model (Internal Combustion)	110	pc
18	Flask, Florence, glass, 500 mL	110	pc
19	Force Table	110	pc
20	Fuse Holder w/ Fuse	22,855	pc
21	Galvanometer	22,855	unit
22	Helical Spring	22,855	pc
23	Iron Core Rod, non-corrugated	8,825	pc
24	Laser Light	23,795	pc
25	Long Nose Pliers, 6-inch, 1 pair/set	1,765	pc
26	Magnet Wire	6,314	spool
27	Manometer, Open U-tube with Nakamura-type Water Pressure Apparatus	110	pc
28	Miniature Light Bulb	120,900	pc
29	Miniature Light Bulb Holder	120,900	assy
30	Mirror Set, acrylic	22,855	set
31	Motor-Generator Model Experiment Set	22,855	set
32	Multimeter, digital	220	pc
33	Optical Bench Set	22,855	set
34	Pair of Bar Magnets	16,076	pair
35	Prism Set	23,795	set
36	Resistance Board	110	pc
37	Ring and Ball Apparatus	110	unit
38	Ripple Tank Set	110	set
39	Slinky Coil, metal	22,855	unit
40	Sound Resonance Set: Loud Speaker	110	pc
41	Sound Resonance Set: Resonance Tube	110	pc
42	Sound Resonance Set: Tone Generator	110	pc
43	Strobe Light	1,050	pc

44	Switch, Knife type, Single Pole Single Throw	40,300	pc
45	Ticker Timer Set	22,745	set
46	Toy Car, non-friction, non-battery	8,620	pc
47	Tuning Fork Set	110	pc
48	Vacuum Tube and Manual Vacuum Pump	1,050	set

B. Contract Duration

Complete delivery shall be made within the contract duration stipulated above, from the date of receipt of the Notice to Proceed (NTP).

C. Delivery Sites

The goods shall be delivered **Door-to-Door** and inspected at the Recipient Schools as specified in the Allocation List labeled as **Annex “H.”**

Statement of Compliance

I/We have read and understood the requirements/scope of service/terms of reference and conditions stipulated herein and shall therefore comply to the conditions set forth in the Contract with respect to this **Section VI. Schedule of Requirements**, if our bid is considered for award.

Name and Signature of Bidder’s Authorized Representative

Section VII. Technical Specifications

Technical Specifications

Item	Specification	Statement of Compliance
		<p><i>[Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder’s statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>

A. General Specification

Item	Specification	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
1	All equipment and components must be of the required level of technology, new, compliant with the requested specifications, responding to current quality standards in international markets, manufactured by reputable and consolidated international brands, reliable and fully adequate for the intended purpose.		
2	All equipment markings, user manuals and electronic copies must be in English.		
3	All equipment shall conform and operate on the standard electric supply in the Philippines (220Vac, 50/60 Hz power, type A & B power sockets)		
4	All equipment must be able to operate in the environmental conditions of the different locations in The Philippines, especially considering humid environments at temperatures ranging from 8°C to 45°C, dusty and moisty environments and frequently salty air.		
5	All connections between components shall be ready to operate, once installation is finalized.		
6	All necessary cables, adaptors and connections must be included and clearly marked, in order to facilitate rapid and accurate assembly.		
7	Bidder should execute an Undertaking that the spare parts are available nationwide for a minimum period of five (5) years and that the original brand of the spare parts are made available to DepEd.		
8	Imported products should pass international quality control product standards and have international quality control product markings such as CE, ISO, ASTM, ASQC, AFCIQ, ASQ, DGQ, EOQC, IQA, and the likes, while locally made products (Philippine-made) should pass the local quality control product standards and bear the PS mark.		
9	The items must be branded and permanently marked on the items, good quality, must be free from toxic materials, and must be properly packed		
10	The equipment and tools can be utilized by male and female learners.		

B. Detailed Technical Specification

Lot No.	Item No.	Description	Specifications	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
I. MASS PRODUCTION ITEMS					
1	BLR-DEVELOPED BASIC SCIKIT				
	1	BLR-developed Basic Scikit: Ø 9.5mm x 250mm long Stand Rod	<p>Functional Specifications: used to interconnect stand base to stand supports; used for suspending pulleys, meter tapes</p> <p>Performance Specifications: should effectively interconnect stand base-stand support systems; suspend single pulleys, meter tapes</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	2	BLR-developed Basic Scikit: Ø 9.5mm x 500mm long Stand Rod	<p>Functional Specifications: used to interconnect stand base to stand supports in heavier setups</p> <p>Performance Specifications: should effectively interconnect stand base-stand support systems in heavier setups</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	3	BLR-developed Basic Scikit: Ø 12.7mm x 1000mm long Stand Rod	<p>Functional Specifications: used as vertical support for free fall setup; horizontal support for suspending multiple pulley systems</p> <p>Performance Specifications: should be able to support vertically free fall setup; horizontal support for suspending multiple pulley systems</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	4	BLR-developed Basic Scikit: Rail	<p>Functional Specifications: used as path rail for motorized and dynamics carts</p> <p>Performance Specifications: should be able to serve as path rail for motorized and dynamics carts</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	5	BLR-developed Basic Scikit: Ring with stem	<p>Functional Specifications: used to support glasswares in heating activities</p> <p>Performance Specifications: should be stable in supporting glasswares</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	6	BLR-developed Basic Scikit: Test Tube Rack	<p>Functional Specifications: used for resting racks for test tubes both for specimen viewing and storage</p> <p>Performance Specifications: should be able to keep test tubes in place used for resting racks for test tubes both for specimen viewing and storage</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	7	BLR-developed Basic Scikit: Wire Gauze	<p>Functional Specifications: used to diffuse open flame in activities that involve heating</p> <p>Performance Specifications: should be able to diffuse open flame in activities that involve heating</p> <p>Design Specifications: please see SCIKIT Basic</p>		
	8	BLR-developed SCIKIT BASIC 001: Stand Base	<p>Functional Specifications: used as base support of activity equipment setups</p> <p>Performance Specifications: should be stable in supporting equipment setups</p> <p>Design Specifications: please see SCIKIT Basic</p>		
9	BLR-developed SCIKIT BASIC 001: Stand Support	<p>Functional Specifications: used to support stand base assembly</p> <p>Performance Specifications: should provide sturdy support for stand base assembly</p>			

			Design Specifications: please see SCIKIT Basic		
10	BLR-developed SCIKIT BASIC 001: SCIKIT BASIC Storage Case 001 (With Cover and Base Sheathing)	Functional Specifications: used as storage for stand bases Performance Specifications: should be able to store free fall apparatus set components Design Specifications: please see SCIKIT Basic			
11	BLR-developed SCIKIT BASIC 002: Multiclamp	Functional Specifications: used as for interconnecting rods perpendicularly Performance Specifications: should be sturdy in interconnecting rods Design Specifications: please see SCIKIT Basic			
12	BLR-developed SCIKIT BASIC 002: Test Tube Holder	Functional Specifications: is used for holding heated test tubes Performance Specifications: should be stable in holding heated test tubes Design Specifications: please see SCIKIT Basic			
13	BLR-developed SCIKIT BASIC 002: SCIKIT BASIC Storage Case 002 (With Cover and Base Sheathing)	Functional Specifications: Used as storage of multiclamps and test tube holders Performance Specifications: should be able to store 25 pieces multiclamp and 5 pieces test tube holders Design Specifications: please see SCIKIT Basic			
14	BLR-developed SCIKIT BASIC 003: Universal Clamp	Functional Specifications: is used for securing heated beakers and flasks in place Performance Specifications: should be stable in holding heated glasswares Design Specifications: please see SCIKIT Basic			
15	BLR-developed SCIKIT BASIC 003: Universal Bosshead	Functional Specifications: for interconnecting rods to increase overall length as activity requirement; can also be used to perpedicularly interconnect rods for lighter loads Performance Specifications: should be sturdy in interconnecting rods Design Specifications: please see SCIKIT Basic			
16	BLR-developed SCIKIT BASIC 003: SCIKIT BASIC Storage Case 003 (With Cover and Base Sheathing)	Functional Specifications: used as storage for clamps and bossheads Performance Specifications: should be able to store 12 pieces universal clamp and 10 universal bosshead Design Specifications: please see SCIKIT Basic			
17	BLR-developed Free Fall Apparatus (Mechanics 001): Ball Case (with Cover and foam)	Functional Specifications: used storage case for the metal balls and metal embedded plastic ball Performance Specifications: Design Specifications: please see Free Fall Apparatus			
18	BLR-developed Free Fall Apparatus (Mechanics 001): Digital Timer Assembly (Digital Stopwatch)	Functional Specifications: used to determine time of fall of metal balls or metal embedded plastic ball in free fall activity Performance Specifications: should be able to determine time of fall of metal balls or metal embedded plastic ball in free fall activity Design Specifications: please see Free Fall Apparatus			
19	BLR-developed Free Fall Apparatus (Mechanics 001): Metertape with hooks and plastic pointer	Functional Specifications: used to measure the height of fall of falling objects in free fall ctivity Performance Specifications: should be able to measure the height of fall of falling objects in free fall ctivity Design Specifications: please see Free Fall Apparatus			
20	BLR-developed Free Fall Apparatus	Functional Specifications: used as free fall object in free fall activity			

	(Mechanics 001): Ø 12.7mm Steel Spherical Ball	Performance Specifications: Design Specifications: please see Free Fall Apparatus		
21	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Plastic Spherical Ball with metal screw	Functional Specifications: used as free fall object in free fall activity Performance Specifications: Design Specifications: please see Free Fall Apparatus		
22	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Steel Spherical Ball	Functional Specifications: used as free fall object in free fall activity Performance Specifications: Design Specifications: please see Free Fall Apparatus		
23	BLR-developed Free Fall Apparatus (Mechanics 001): Pad Switch Assembly	Functional Specifications: used as second switch to stop the stopwatch in free fall activity Performance Specifications: should be able to stop the stopwatch in free fall activity Design Specifications: please see Free Fall Apparatus		
24	BLR-developed Free Fall Apparatus (Mechanics 001): Solenoid Assembly	Functional Specifications: used as electromagnet to temporarily suspend the metal balls or the metal imbedded plastic ball in free fall activity Performance Specifications: should be able to provide electromagnetism to temporarily suspend the metal balls or the metal imbedded plastic ball in free fall activity Design Specifications: please see Free Fall Apparatus		
25	BLR-developed Free Fall Apparatus (Mechanics 001): Synchro Box Assembly	Functional Specifications: used to simultaneously start the stopwatch and cut-off current to the solenoid Performance Specifications: should be able to simultaneously start the stopwatch and cut-off current to the solenoid Design Specifications: please see Free Fall Apparatus		
26	BLR-developed Free Fall Apparatus (Mechanics 001): SCIKIT MECHANICS Storage Case 001 (With Cover and Base Sheathing)	Functional Specifications: used as storage case for free fall apparatus set Performance Specifications: Design Specifications: please see Scikit Mechanics Storage Cases		
27	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-spring loaded	Functional Specifications: used as source of action force in Newton's 3rd law of Motion Experiment Performance Specifications: should be able to provide action force in Newton's 3rd law of Motion Experiment Design Specifications: please see Dynamic Carts-Rail System		
28	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-with counterweight	Functional Specifications: used as source of reaction force in Newton's 3rd law of Motion Experiment Performance Specifications: should be able to provide reaction force in Newton's 3rd law of Motion Experiment Design Specifications: please see Dynamic Carts-Rail System		
29	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cylindrical Mass, 50-gram	Functional Specifications: used for loading into each dynamics cart for newton's 2nd Law of Motion experiment Performance Specifications: should be able to load into each dynamics cart for newton's 2nd Law of Motion experiment Design Specifications: please see Dynamic Carts-Rail System		
30	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Driving Mass, 3-gram	Functional Specifications: use to provide the 'net' force in newton's 2nd Law of Motion experiment Performance Specifications: should be able to provide the 'net' force in newton's 2nd Law of Motion experiment Design Specifications: please see Dynamic Carts-Rail System		

31	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Leveling Pad Assembly	Functional Specifications: used as bottom support of rails Performance Specifications: should be able to support rails Design Specifications: please see Dynamic Carts-Rail System		
32	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Plastic Hammer	Functional Specifications: used to strike the push rod to release spring in spring-loaded dynamics cart Performance Specifications: should be able to make push rod release spring in spring-loaded dynamics cart Design Specifications: please see Dynamic Carts-Rail System		
33	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Modelling Clay, 1 bar/set	Functional Specifications: used as storage case for dynamics carts and accessories set Performance Specifications: "Design Specifications: 1. Any color 2. Minimum weight: 150 gram bar, individually packed 3. Non drying, non hardening type 4. Brand must be permanently marked in its packaging."		
34	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Stopper-Fork Assembly	Functional Specifications: used as low inertia string guide in Newton's 2nd Law of Motion Experiment Performance Specifications: should be able to provide low inertia string guide in Newton's 2nd Law of Motion Experiment Design Specifications: please see Dynamic Carts-Rail System		
35	BLR-developed Dynamics Carts-Rail System (Mechanics 002): String (thin), 1 ball/set	Functional Specifications: used to transmit net force from weight of 3-gram driving masses to pull dynamics carts along rail Performance Specifications: should be able to transmit net force from weight of 3-gram driving masses to pull dynamics carts along rail Design Specifications: 1. Ball of cotton string, crochet size 8 thread type 2. Ball is 50 grams 3. Any color		
36	BLR-developed Dynamics Carts-Rail System (Mechanics 002): SCIKIT MECHANICS Storage Case 002 (With Cover and Base Sheathing)	Functional Specifications: used as storage case for Dynamics Carts-Rail System (Mechanics 002) and accessories Performance Specifications: must store the items for Dynamics Carts-Rail System Set Design Specifications: please see Scikit Mechanics Storage Cases		
37	BLR-developed SCIKIT MECHANICS 003: 10-Newton Spring Balance	Functional Specifications: used to measure forces with magnitudes equivalent up to the weight of 1 kilogram mass Performance Specifications: should be able to measure forces with magnitudes equivalent up to the weight of 1 kilogram mass Design Specifications: please see Dynamic Carts-Rail System		
38	BLR-developed SCIKIT MECHANICS 003: 250-gram Hooked Mass	Functional Specifications: used to provide 5 newton load in simple machines activity Performance Specifications: should be able to provide 5 newton load in simple machines activity Design Specifications: please see Dynamic Carts-Rail System		
39	BLR-developed SCIKIT MECHANICS 003: 500-gram Hooked Mass	Functional Specifications: used to provide 2.5 newton load in simple machines activity Performance Specifications: should be to provide 2.5 newton load in simple machines activity Design Specifications: please see Dynamic Carts-Rail System		
40	BLR-developed SCIKIT MECHANICS 003: Axle and Lever Beam	Functional Specifications: used to demonstrate the lever principle Performance Specifications: should be to demonstrate the lever principle Design Specifications: please see Dynamic Carts-Rail System		

41	BLR-developed SCIKIT MECHANICS 003: Double Pulley	Functional Specifications: used to demonstrate efficiency of pulley combinations Performance Specifications: should be able to demonstrate efficiency of pulley combinations Design Specifications: please see Dynamic Carts-Rail System		
42	BLR-developed SCIKIT MECHANICS 003: Dry Cell, AA 1.5V	Functional Specifications: used to provide DC power to motorized cart Performance Specifications: should be able to provide DC power to motorized cart Design Specifications: 1. Dry cell, 1.5 volts, size AA		
43	BLR-developed SCIKIT MECHANICS 003: Friction Block and Friction Board	Functional Specifications: Used to validate factors affecting friction force Performance Specifications: Must be able to validate factors affecting friction force Design Specifications: please see Dynamic Carts-Rail System		
44	BLR-developed SCIKIT MECHANICS 003: Leveling Hose	Functional Specifications: used to check horizontal levelness of surfaces where the rail will be placed Performance Specifications: should be able to check horizontal levelness of surfaces where the rail will be placed Design Specifications: please see Dynamic Carts-Rail System		
45	BLR-developed SCIKIT MECHANICS 003: Motorized Cart	Functional Specifications: used as constant speed object in uniform speed activity Performance Specifications: should be able to move with constant speed object in uniform speed activity Design Specifications: please see Dynamic Carts-Rail System		
46	BLR-developed SCIKIT MECHANICS 003: Single Pulley	Functional Specifications: used to demonstrate that a pulley can function to change direction of force Performance Specifications: should be able to demonstrate that a pulley can function to change direction of force Design Specifications: please see Dynamic Carts-Rail System		
47	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear B	Functional Specifications: used to transmit torque to worm gear A Performance Specifications: should be able to walk downstairs at least 2 levels Design Specifications: please see Dynamic Carts-Rail System		
48	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear C	Functional Specifications: used to change torque direction of motor torque Performance Specifications: should be able to change torque direction of motor torque Design Specifications: please see Dynamic Carts-Rail System		
49	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm Gear A	Functional Specifications: used to transmit torque to worm with axle Performance Specifications: should be able to transmit torque to worm with axle Design Specifications: please see Dynamic Carts-Rail System		
50	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm with Axle	Functional Specifications: used to transmit power to motorized cart wheels Performance Specifications: should be able to transmit torque to motorized cart wheels Design Specifications: please see Dynamic Carts-Rail System		
51	BLR-developed SCIKIT MECHANICS 003: String (thick), 1 ball/set	Functional Specifications: used to interconnect pulley combinations		

		Performance Specifications: should be able to interconnect pulley combinations "Design Specifications: 1. Ball of cotton string, twine rope type 2. 3 mm thick x 60 m long 3. any color"		
52	BLR-developed SCIKIT MECHANICS 003: SCIKIT MECHANICS Storage Case 003 (With Cover and Base Sheathing)	Functional Specifications: used as storage case for motorized cart, pulley sets, lever assembly, leveling hoses, and spare parts Performance Specifications: Design Specifications: please see Scikit Mechanics Storage Cases		
53	BLR-developed: User's Manual (SCIKIT BASIC)	Functional Specifications: used as reference guide on assembly of Scikit Basic items Performance Specifications: Design Specifications: please see attached BASIC User's Manual See Cover and Inside Pages Specifications		
54	BLR-developed: User's Manual (SCIKIT MECHANICS)	Functional Specifications: used as reference guide on assembly of mechanics items Performance Specifications: Design Specifications: please see attached MECHANICS Manual See Cover and Inside Pages Specifications		
55	BLR-developed: Experiment Module (SCIKIT MECHANICS)	Functional Specifications: used as guides to perform mechanics activities Performance Specifications: Design Specifications: please see attached EXPERIMENT MODULES See Cover and Inside Pages Specifications		
BLR-developed SCIENCE AND MATHEMATICS EQUIPMENT (Elem, JHS, & SHS)				
2	1	BLR-developed Blackboard Compass Functional Specifications: used to aid teacher in constructing/drawing circles on board Performance Specifications: should be able to draw visible/large circles on board Design Specifications: please see Blackboard Compass		
2	2	BLR-developed Blackboard Protractor Functional Specifications: used to aid teacher in constructing/drawing angles, arcs, and circles on board Performance Specifications: should be able to draw visible/large angles, arcs, and circles on board Design Specifications: please see Blackboard Protractor		
3	3	BLR-developed Convection Tank (Thermocline Apparatus) Functional Specifications: used to demonstrate liquid convection Performance Specifications: should be able to demonstrate liquid convection Design Specifications: please see Convection Tank		
4	4	BLR-developed Fresh Water Aquarium with Stand Functional Specifications: Used to demonstrate the different thermal (heat) conductivities of five (5) different metals Performance Specifications: must be able to demonstrate the different thermal (heat) conductivities of five (5) different metals, with copper as the first metal, followed by aluminum, brass, mild steel and stainless steel. Design Specifications: please see Heat Conductivity Apparatus		
5	5	BLR-developed Heat Conductivity Apparatus Functional Specifications: Used to produce a defined beam of light Performance Specifications: Must be able to produce a defined beam of light Design Specifications: please see Light Source		
6	6	BLR-developed Light Source (Single Slit) Functional Specifications: used to demonstrate transformer principle		

		Performance Specifications: should be able to demonstrate transformer principle Design Specifications: please see Set of Coils		
7	BLR-developed Set of Coils (Transformer)	Functional Specifications: used to provide variable AC and DC voltages for student group work Performance Specifications: should be able to provide variable AC and DC voltages for student group work Design Specifications: please see Variable Power Supply		
8	BLR-developed Variable Power Supply with 5 pcs. Terminal Board	Functional Specifications: Used to keep aquatic plants and animals Performance Specifications: Must be able to demonstrate interaction among plants and animals in a marine-like environment. Design Specifications: please see Fresh Water Aquarium with Stand		
9	BLR-developed: Fraction Set	Functional Specifications: used to demonstrate part-to-whole concept using shapes Performance Specifications: must be able to demonstrate fraction as a concept using whole and fractional part of a circle and square Design Specifications: please see Fraction Set		
10	BLR-developed: Linear Pair/Angle Demonstrator	Functional Specifications: used to demonstrate kinds of angles and some angle relationship Performance Specifications: must be able to demonstrate acute, obtuse, and right angle and deduct the said angles' definitions Design Specifications: please see Linear Pair or Angle Demonstrator		
11	BLR-developed: Manipulative Electricity Consumption Meter Model, blackboard	Functional Specifications: used to demonstrate electricity consumption Performance Specifications: must be able to demonstrate electricity consumption in meter reading Design Specifications: please see Manipulative Electricity Consumption Meter		
12	BLR-developed: Manipulative Water Consumption Meter Model, blackboard	Functional Specifications: used to demonstrate water consumption Performance Specifications: must be able to demonstrate water consumption in meter reading Design Specifications: please see Manipulative Water Consumption Meter		
13	BLR-developed: Models of 7-sided to 12-sided Regular Polygons	Functional Specifications: used to demonstrate regular polygons Performance Specifications: must be able to demonstrate 7-sided to 12-sided regular polygon Design Specifications: please see Regular Polygon		
14	BLR-developed: Number Blocks	Functional Specifications: used in number recognition and fundamental operation Performance Specifications: must be sturdy when thrown and show specific number and/or operation; be able to perform like dice Design Specifications: please see Number Blocks		
15	BLR-developed: Place Value Chart with decimal pockets	Functional Specifications: used to visualize whole and decimal numbers' place value Performance Specifications: must be able to hold number cards and some base ten blocks Design Specifications: please see Place Value Chart		
3	BLR-DEVELOPED STORAGE CABINETS			

	1	BLR-developed Storage Cabinet	Functional Specifications: Used for storage of science and mathematics equipment Performance Specifications: Design Specifications: please see Storage Cabinet		
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II. SCIENCE AND MATHEMATICS EQUIPMENT (MARKET ITEMS)

CHEMICALS					
4	1	Benedict's Solution, 100ml/bottle	Functional Specifications: Used to test for levels/ traces of simple reducing sugars Performance Specifications: Must be able to test for the presence (levels of traces) of reducing sugars such as glucose. A positive test with Benedict's reagent is shown by a color change from clear blue to: a) blue solution - 0 g % (no trace of simple reducing sugar) b) green precipitate- 0.5 to 1.0 g % (traces of simple reducing sugar) c) yellow precipitate- 1.0-1.5 g % (low simple reducing sugar) d) orange precipitate - 1.5 to 2.0 g % (moderate simple reducing sugar) e) brick-red precipitate - greater than 2.0 g % (high presence of simple reducing sugar) Design Specifications: 1. Features an aqua blue liquid 2. Chemical Formula: $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} + \text{Na}_2\text{CO}_3 + \text{Na}_2\text{C}_6\text{H}_5\text{O}_7$ 3. Capacity: 100 mL 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. Comes with a brand printed permanently on the product label 10. Must be brand new		
	2	Boric Acid, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify boron or its specific unknown metalloid ion based on the characteristic color it emits on the Bunsen flame. Performance Specifications: Must be used as a substrate in Flame test to visually identify boron, or its ion based on the characteristic color it emits on the Bunsen flame. Boric acid emits a bright green color which indicates the presence of boron or its ion Design Specifications: 1. Features a colorless or white, odorless and crystalline solid 2. Chemical formula: H_3BO_3 3. Mass/bottle: 100 g 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years "8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. Comes with a brand printed permanently on the product label 10. Must be brand new		
	3	Bromothymol Blue	Functional Specifications: Used as an indicator of dissolved Carbon dioxide. Performance Specifications: Must be able to show the effect of changes in abiotic factors on the ecosystem.		

		<p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Color: Dark Blue/blue-black 2. Concentration range: 0.01% - 0.04% aqueous solution (as indicated in the product label) 3. Capacity: 100 mL 4. Chemical formula :$C_{27}H_{28}Br_2O_5S$ 5. With Safety Data Sheet 6. The chemical must be in original plastic packing with threaded chemical seal pack bottle. 7. Properly labeled with the chemical name, concentration, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years. 8. Must be branded and brand new. The brand shall be printed on the product label. 		
4	Calcium Chloride, 100 grams / bottle	<p>Functional Specifications: Used as a substrate in Flame test to visually identify calcium or its ion based on the characteristic color it emits on the Bunsen flame.</p> <p>Performance Specifications: Used as a substrate in Flame test to visually identify calcium element, or an unknown metalloid ion based on the characteristic color the chemical emits on the Bunsen flame. Calcium chloride emits an orange red/yellowish red color which indicates the presence of the calcium ion</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a white powder, crystals or granules 2. Chemical Formula: $CaCl_2$ 3. Mass per bottle: 100 grams 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning. 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and with SDS (Safety Data Sheet) 9. With brand printed permanently on the product label 10. Must be brand new 		
5	Chemicals Storage Box	<p>Functional Specifications: Used to separate, arrange and hold/contain/store chemicals inside</p> <p>Performance Specifications: Must be able to:</p> <ol style="list-style-type: none"> a) separate, arrange, and hold/contain/store small- and medium sized chemicals by utilizing dividers (width/length) for compartmentalizing to increase/decrease available space for bigger or smaller size, which resists most solvents and chemicals, b) protect items against dirt, dust and damage and c) makes contents inside the box easy to see <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Bin Type: Dividable grid container 2. Material: Polypropylene (plastic) with the following dimensions: <ol style="list-style-type: none"> a) Depth/ Length: 571-573 mm b) Width: 444-446 mm c) Height: 304-306 mm 3. Color: Clear (transparent) 4. Shape: Rectangular 5. With eleven (11) long divider slots 6. With fifteen (15) short divider slots to allow sub-division of the containers, down to a 1-1/8-inch square compartment size. 7. With large, flat areas on all four sides for content identification 8. With comfort grip handle 9. With strong stacking rims and multi-ribbed external sides to provide high impact strength. 10. The container can be divided into compartments by length and/or width 11. Accessories <ol style="list-style-type: none"> a.) With lid/cover <ol style="list-style-type: none"> i) Shape: Rectangular ii) Material: Polypropylene (Plastic) with the following dimensions: 		

		<p>a) (LxWxH): 571-573 mm x 444-446 mm x 304-306 mm</p> <p>iii) Color: Clear (transparent) Snap on molded lid/cover guides provide secure stacking lids/covers snap securely on to box</p> <p>b) Dividers, width (short)</p> <p>i) Shape: Rectangular</p> <p>ii) Material: Polyethylene/polypropylene (plastic) with the following dimensions:</p> <p>a) Length: 396-400 mm</p> <p>b) Height: 292-294 mm</p> <p>iii) Quantity: 15 pc</p> <p>iv) Color: Gray/black</p> <p>c) Dividers, (length/long)</p> <p>i) Shape: Rectangular</p> <p>ii) Material: Polyethylene/polypropylene (plastic) with the following dimensions:</p> <p>a) Length: 571-573 mm</p> <p>b) Height: 304-306 mm</p> <p>iii) Quantity: 11 pc</p> <p>iv) Color: Gray/black</p> <p>12. Must be free from breakage, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein</p> <p>13. Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the chemicals storage box is polypropylene (plastic), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>14. Must be packed in a sturdy box</p> <p>15. Comes with a brand printed permanently on a sturdy box</p> <p>16. Must be brand new</p>		
6	Copper Sulfate, CuSO ₄ , 100 grams / bottle	<p>Functional Specifications: Used as: a) an oxidizing agent or oxidant and is reduced in a spontaneous [chemical (redox) reaction decreasing its oxidation state with metals above it, like zinc, in the Activity Series of Metals]</p> <p>b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame.</p> <p>Performance Specifications: Must be able to</p> <p>a) oxidize the other reactant of a spontaneous redox reaction by gaining electrons reducing its oxidation state with metals above it, like zinc, in the Activity Series of Metals, resulting in copper in the free state and the salt of the metal being displaced.</p> <p>b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame. Copper sulfate emits blue green color on the Bunsen flame.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a blue, odorless crystalline solid 2. Chemical formula: CuSO₄ 3. Mass per bottle: 100 g 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning. 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product."] 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. With brand printed permanently on the product label 10. Must be brand new 		
7	Gentian Violet, 100 ml / bottle	<p>Functional Specifications: Used in microscopy as biological stain.</p> <p>Performance Specifications: Must be able to enhance animal cell image as to presence or absence of some organelles.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Capacity (minimum): 100 mL per bottle 2. Color: Blue-violet/dark purple 3. With Safety Data Sheet 		

		<p>4. The chemical must be in original plastic packing with threaded chemical seal pack bottle.</p> <p>5. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years.</p> <p>6. Must be branded and brand new. The brand shall be printed on the product label.</p>		
8	Iodine Solution, 100 ml / bottle	<p>Functional Specifications: Used in microscopy as biological stain.</p> <p>Performance Specifications: Must be able to enhance plant cells as to presence or absence of some organelles.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Capacity: 100 mL per bottle 2. Color: Light orange-brown 3. Alternate name: Lugol's Solution 4. With Safety Data Sheet 5. The chemical must be in original plastic packing with threaded chemical seal pack bottle. 6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years. 7. Must be branded and brand new. The brand shall be printed on the product label. 		
9	Magnesium Ribbon, 25 grams, 1 roll	<p>Functional Specifications: Used as a reactant and is ignited over a flame to demonstrate a highly exothermic combustion reaction</p> <p>Performance Specifications: Must be able to produce a highly exothermic combustion reaction resulting in a blinding white light and intense heat when ignited over a flame. A white powdery solid, magnesium oxide is produced</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a relatively soft, lightweight solid metal 2. Color: Shiny silvery gray--white 3. Chemical formula: Mg 4. Form: Solid (ribbon) 5. Mass per roll: 25-27 g 6. Number of roll: 1 roll 7. Comes in original plastic packing 8. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning. 9. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 10. Expiration dates should be at least two years 11. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 12. Comes with a brand printed permanently on the product label 13. Must be brand new 		
10	Manganese Dioxide, 50 grams / bottle	<p>Functional Specifications: Used as a catalyst to demonstrate decomposition reaction of hydrogen peroxide and observe its effect on the rate of chemical reaction</p> <p>Performance Specifications: Must be used as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water and to demonstrate its effect on the rate of chemical reaction</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Form: Solid powder 2. Color: Brown-black solid/ blackish or brown solid 3. Chemical formula: MnO₂ 4. Mass per bottle: 50 g 5. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning. 7. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 8. Expiration dates should be at least two years 9. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 		

		10. Comes with a brand printed permanently on the product label 11. Must be brand new		
11	Microscope's Immersion Oil, 100mL/bot	<p>Functional Specifications: Used to increase the resolving power of the microscope's 100x objective.</p> <p>Performance Specifications: Must be able to give a clear and very distinct image of the specimen.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Capacity: 100 mL/bottle 2. Non-drying, clear and transparent 3. With Refractive index: 1.515 - 1.518 (as indicated in SDS, product label or certificate) 4. With Safety Data Sheet 5. The chemical must be in original plastic packing with threaded chemical seal pack bottle. 6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years. 7. Must be branded and brand new. The brand shall be printed on the product label. 		
12	Phenolphthalein, 100 grams/bottle	<p>Functional Specifications: Used as an indicator to effect a color change to distinguish an acid from a base and in performing acid base titration</p> <p>Performance Specifications: Must be used as an indicator to distinguish and acid from a base and in performing acid base titration, as it indicates the change in pH by changing its color, the results vary:</p> <ol style="list-style-type: none"> a) For a base, it gives a pink color b) For an acid, it is colorless <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a white to cream, odorless solid powder 2. Chemical formula: $C_{20}H_{14}O_4$ 3. Mass per bottle: 100 g 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. Comes with a brand printed permanently on the product label 10. Must be brand new 		
13	Potassium Chloride, 100 grams / bottle	<p>Functional Specifications: Used as a substrate in Flame test to visually identify a specific element or an unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.</p> <p>Performance Specifications: Must be used as:</p> <ol style="list-style-type: none"> a) a substrate in Flame test to visually identify potassium element, or its ion based on the characteristic color it emits on the Bunsen flame. Potassium chloride emits a light lilac color which indicates the presence of the potassium ion b) as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water to demonstrate the effect of catalyst on the rate of chemical reaction <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a white crystalline solid 2. Chemical formula: KCl 3. Mass per bottle: 100 g 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning"] 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product." 		

		<p>7. Expiration dates should be at least two years</p> <p>8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)</p> <p>9. Comes with a brand printed permanently on the product label</p> <p>10. Must be brand new</p>		
14	Potassium Iodide, 100 grams / bottle	<p>Functional Specifications: Used as:</p> <p>a) a substrate in Flame test to visually identify potassium or its ion based on the characteristic color it emits on the Bunsen flame</p> <p>b) a catalyst to demonstrate decomposition reaction of hydrogen peroxide to form water and oxygen</p> <p>Performance Specifications: Must be:</p> <p>a) used as a substrate in Flame test to visually identify potassium, or its ion based on the characteristic color the chemical emits on the Bunsen flame.</p> <p>Potassium iodide emits a lilac color which indicates the presence of the potassium ion</p> <p>b) able to undergo a spontaneous decomposition of hydrogen peroxide into bubbles of oxygen gas and water</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features white granules and crystals solid 2. Chemical formula: KI 3. Mass per bottle: 100 g 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. Comes with a brand printed permanently on the product label 10. Must be brand new 		
15	Sodium Hydroxide (Lye), 250 grams/bottle	<p>Functional Specifications: Used:</p> <p>a) to differentiate an acid from a base</p> <p>b) as a titrant added from a base burette in acid base titration</p> <p>Performance Specifications:</p> <p>a) Must turn pink when added with drop/s of phenolphthalein and be able to neutralize an acid to form salt and water</p> <p>b) In acid-base titration, the sodium hydroxide is used as a titrant added from a base buret to a known quantity of the analyte (the unknown solution) until the reaction is complete. Knowing the volume of titrant added allows the determination of the concentration of the unknown using the formula: $N_a = N_b V_b / V_a$</p> <p>c) pH value: pH 13-14</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a white semi-transparent odorless hygroscopic solid 2. Chemical formula: NaOH 3. Mass per bottle: 250 grams 4. Comes in original screw type plastic packing with threaded chemical seal pack bottle. 5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning 6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years 8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) 9. Comes with a brand printed permanently on the product label 10. Must be brand new 		
16	Yeast, active dry, 100 grams / bottle	<p>Functional Specifications: Used to break down some of the starch and sugar in the mixture to produce more yeast cells and carbon dioxide gas.</p> <p>Performance Specifications: Must be able to illustrate asexual type of reproduction.</p>		

			<p>Design Specifications:</p> <ol style="list-style-type: none"> Active dry yeast in granules Color: Ivory light brown Capacity: 100 grams per bottle With Safety Data Sheet The chemical must be in original plastic packing with threaded chemical seal pack bottle. Properly labeled with chemical name, the name of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date. Expiration shall be at least two years. Must be branded and brand new. The brand shall be printed on the product label. 		
17	Zinc Chloride, 100 grams / bottle	<p>Functional Specifications: Used as a substrate in Flame test to visually identify zinc or its ion based on the characteristic color it emits on the Bunsen flame.</p> <p>Performance Specifications: Must be used as a substrate in Flame test to visually identify zinc element or its ion based on the characteristic color it emits on the Bunsen flame. Zinc chloride emits a blue green to pale green/colorless color which indicates the presence of the zinc ion</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Features a white crystalline/granular solid powder Chemical Formula: $ZnCl_2$ Mass per plastic bottle: 100 grams Comes in original screw type plastic packing with threaded chemical seal pack bottle. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning" With manufacturing and expiry date, chemical assay, and other useful information regarding the product. Expiration dates should be at least two years Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) Comes with a brand marked permanently on the product label Must be brand new 			
18	Zinc metal, pellets/mossy, 100 grams / bottle	<p>Functional Specifications: Used as a reducing agent to reduce the other reactant of a single displacement (redox reaction) with metals above it in the Activity Series of Metals</p> <p>Performance Specifications: Must be able to reduce the other reactant of a single displacement (redox) reaction with metals above it in the Activity Series of Metals, like zinc, to produce salt and the displaced metal in its free state</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Features a bluish white, or as a grey powder/pellets/mossy solid Chemical Formula: Zn Mass per plastic bottle: 100 grams Comes in original screw type plastic packing, with threaded chemical seal pack bottle. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning With manufacturing and expiry date, chemical assay, and other useful information regarding the product. Expiration dates should be at least two years Accompanied with Certificate of Analysis and SDS (Safety Data Sheet) Comes with a brand printed permanently on the product label Must be brand new 			
GLASSWARES AND LAB TOOLS					
5	1	Beaker, borosilicate, 250 mL	<p>Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100°C for normal, standard use service</p> <p>Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats</p>		

		<p>them over a Bunsen burner's flame up to more than 100°C for normal, standard use service</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a cylindrical container with straight sides, a flat bottom, with a beaded rim and with a small spout (or "beak") to aid in pouring. 2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions: <ul style="list-style-type: none"> Outside diameter: 68-70mm Height: 90-92 mm Thickness: 1.5 mm to 2.0 mm 3. Type: Griffin, low form 4. Features an easy-pour spout 5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/ markings enamelled onto the glass, which includes the following: <ol style="list-style-type: none"> a) Capacity: 250 mL b) Manufacturer's name or trademark c) With large white marking spot d) With double graduated metric scale <ol style="list-style-type: none"> d1) With marking graduation to fill: starts at 25 mL in 25 mL increments d2) With marking graduation to empty: starts at 0 mL in 200 mL increments d3) Graduation interval: 25 mL d4) Graduation range: 25 mL to 200 mL 6. Must be able to stand solidly/is stable when placed on a level surface 7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein 8. Must be able to withstand heating of water up to 150 deg C 9. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box 10. Comes with a brand enamelled permanently onto the glass 11. Must be brand new 		
2	Beaker, borosilicate, 50 mL	<p>Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 100 °C</p> <p>Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100 °C</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a cylindrical container with straight sides, a flat bottom with a beaded rim and a small spout (or "beak") to aid in pouring 2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions: <ul style="list-style-type: none"> Outer diameter: 40-42 mm Height: 55-57 mm Thickness: 1.5 to 2.0 mm 3. Type: Griffin, low form 4. Features an easy-pour spout 5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/ markings enamelled onto the glass, which includes the following: <ol style="list-style-type: none"> a) Capacity: 50 mL b) Manufacturer's name or trademark c) With large white marking spot d) With single graduated metric scale <ol style="list-style-type: none"> d1) With marking graduation to fill: starts at 10 mL in 10 mL increments " d2) Graduation interval: 10 mL d3) Graduation range: 10 mL to 40 mL 6. Must be able to stand solidly/is stable when placed on a level surface 		

		<p>7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>8. Must be able to withstand heating up water up to 150°C</p> <p>9. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box.</p> <p>10. Comes with a brand enamelled permanently onto the glass</p> <p>11. Must be brand new</p>		
3	Burette, 10 mL capacity (acid)	<p>Functional Specifications: Used to hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base in acid-base titration to determine unknown concentration of base</p> <p>Performance Specifications: Must hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base (with color change from pink to colorless when end point is reached) in acid-base titration to determine unknown concentration of base</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a long, vertical cylindrical glass tube with a volumetric graduation on its full length, with a leak-free plastic stopcock at its lower end and a tapered capillary tube at the stopcock's outlet. 2. Material : Clear, transparent, smooth, bubble-free high quality borosilicate glass, with the following dimensions: Length of burette: 510-620 mm 3. Fitted with grease-free interchangeable with 1.5 to 2 mm bore plastic leak-free stopcock plug. Material of of stopcock :PTFE key " 4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters, inscriptions/ markings under normal conditions of use of the burettes, and large, easy-to-read numbers every 0.5 mL enamelled permanently onto the glass before the first graduation line which includes the following: <ol style="list-style-type: none"> a) Manufacturer's name or trademark b) Capacity: 10 mL c) Sub. Div. : 0.05 ml d)Tolerance: ± 0.02-± 0.03 mL e) Class: A f) Unit of volume: mL g) Ex h) Reference Temp: 20°C-27°C 5. With Statement of Accuracy /Certificate of Accuracy) latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 6. Marked with an individual serial number (Serially Numbered) 7. Individually placed in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box. 8. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein. 9. Includes Operations Manual in English, 10. With Activity Sheets/Teacher's Manual in English 11. Comes with a brand enamelled permanently onto the glass 12. Must be brand new 		
4	Burette, 10 mL capacity (base)	<p>Functional Specifications: Used to hold/contain the base as a titrant to be delivered/ dispensed to tirate an acid up to 10 mL capacity in acid-base titration to determine unknown concentration of acid</p> <p>Performance Specifications: Must hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity (with color change from colorless to very faint pink when end point is reached) in acid-base titration to determine unknown concentration of acid</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a long, graduated glass tube, with a leakage-free stopcock at its lower end and a tapered capillary tube at the screw type stopcock's outlet. 		

		<p>2. Material : Clear, transparent, bubble-free, smooth borosilicate glass, with the following dimensions:</p> <p>a) Length of burette: 444.5-462.0 mm</p> <p>3. With PTFE (screw-thread type/needle valve-Rotaflow leak-proof plastic) stopcock</p> <p>4. With permanent, durable colored markings in fine, clear, continuous, sharp, of uniform width, distinct colored graduation lines of approximate volumes, clearly legible and indelible block letters and inscriptions with large, easy-to-read numbers every 0.5-1.0 mL subdivisions enamelled permanently onto the glass, before the first graduation line, which includes the following:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Capacity: 10 mL</p> <p>c) Sub. Div. : 0.05 ml</p> <p>d) Tolerance: 0.05 mL</p> <p>d) Class: B</p> <p>e) Unit of volume: mL</p> <p>f) Ex</p> <p>g) Reference Temp: 20°C-27°C</p> <p>5. With machine Jet flow control which is made from thick walled capillary tubing which forms an integral part of the burette shall have</p> <p>no cavity at the join likely to trap air bubbles.</p> <p>6. With Statement of Accuracy /Certificate of Accuracy) latest issued by</p> <p>the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin</p> <p>7. Marked with an individual serial number (Serially Numbered).</p> <p>8. Individually placed in bubble wrap, enclosed in polystyrene and packed in a padded sturdy box</p> <p>9. Must be free from breakage, leaks, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.</p> <p>10. Includes Operations Manual in English,</p> <p>11. With Activity Sheets/Teacher's Manual in English</p> <p>12. Comes with a brand enamelled permanently onto the glass</p> <p>13. Must be brand new</p>		
5	Burner, Alcohol, glass, 150 ml. Capacity	<p>Functional Specifications: Used to produce hot, consistent open flame for slow/gentle heating of glasswares and substances</p> <p>"Performance Specifications:</p> <p>Must be able to produce hot, consistent open flame</p> <p>a)for slow/gentle heating of glasswares and substances</p> <p>b)can withstand prolonged heating without breaking</p> <p>c) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test</p> <p>d) bend a glass tubing</p> <p>e) heat, to sterilize, to accelerate, and to trigger chemical reactions,</p> <p>f) for combustion purposes and techniques</p> <p>Design Specifications:</p> <p>1. Features a globe-shaped body and flat base (bottom) with threaded mouth</p> <p>2. Material : Sturdy, heavy walled, clear, transparent, smooth, bubble-free glass,</p> <p>3. Capacity : 150 mL</p> <p>4. With rust/corrosive-free wick holder permanently attached to a threaded base</p> <p>a) Material of wick holder and cover/caps : Nickel- plated brass</p> <p>b) Type of wick holder : Threaded</p> <p>5. With one (1) pc cotton fiber/strand braided wick perfectly fitted to the wick tube"</p> <p>a) Material of wick : Cotton fiber/strand</p> <p>b)Type of wick: Braided</p> <p>c)Length of wick : 178-179 mm</p> <p>d)Diameter : 5-6 mm</p> <p>6. With shiny, smooth, and corrosion-free metal snuff/snap-on cover/cap</p> <p>7 With ten (10) pc replacement braided cotton fiber/strand wicks</p>		

		<p>8. Wrapped in paper, enclosed in bubble wrap and packed in a compartmentalized box</p> <p>9. Must be free from rust, breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.</p> <p>10. Comes with a brand printed permanently onto the box</p> <p>11. Must be brand new</p>		
6	Burner, Bunsen	<p>Functional Specifications: Used to :</p> <p>a) produce single, hot, continuous, consistent open blue flame</p> <p>b) for slow/gentle heating of glasswares and substances,</p> <p>c) rapidly heat high-boiling liquids with low flammability like water</p> <p>d) heat, sterilize/accelerate/ trigger chemical reactions,</p> <p>e) for combustion purposes</p> <p>Performance Specifications:</p> <p>Must be able to produce a single, hot, continuous, consistent open blue flame to:</p> <p>a) visually determine the hottest part of the Bunsen flame</p> <p>b) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test</p> <p>c) bend a glass tubing</p> <p>d) used as a heating medium to demonstrate distillation, as one of the simple separation techniques</p> <p>e) slow/gentle heating of glasswares and substances</p> <p>f) rapidly heat high-boiling liquids with low flammability like water</p> <p>g) heat, to sterilize, to accelerate, and to trigger chemical reactions,</p> <p>h) for combustion purposes and techniques</p> <p>Design Specifications:</p> <p>1.Type : Gas type with accessories</p> <p>2. Features a long, hollow burner tube with stabilizer top and serrated inlet tube</p> <p>3. Material for burner tube : Aluminum, with the following dimensions:</p> <p>. a) Diameter of burner tube: 11-12 mm diameter</p> <p>b) Over-all height: 152-155 mm</p> <p>4. With flame stabilizer</p> <p>5. With threaded gas needle valve (located opposite to serrated inlet tube)</p> <p>6. Material of base: Nickel-plated zinc-alloy</p> <p>7. Must be able to stand solidly/is stable when placed on a level surface</p> <p>8. Individually packed in a sturdy box</p> <p>9. With User's Manual and Operations Guide in English</p> <p>10. Comes with Activity Sheets with Teacher's Manual in English</p> <p>11. For numbers #9 to 10; the technical specifications (a-e) must be followed:</p> <p>a) For Contents List of materials, In Table form</p> <p>b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) In 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:</p> <p>i) Paper Size : A4 size , 80 gsm</p> <p>ii) Font : Times New Roman</p> <p>iii) Font size : 12</p> <p>iv) Margins on all sides with 2 point width border line</p> <p>v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p> <p>12. Must be free from rust, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein.</p> <p>13. Comes with a brand printed permanently on the box</p>		

		14. Must be brand new		
7	Cork Stopper # 5 (for Ø 16mm test tube)	<p>Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware to prevent leaks, hazards and contamination to yield positive results during chemical reactions</p> <p>Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware and to prevent leaks, hazards and contamination to yield positive results during chemical reactions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features an extra Select Grade cylindrical with a tapered bottom end with fewer lenticels (crevices) 2. Material of cork : Elastic and near impermeable with the following dimensions: <ol style="list-style-type: none"> a) Height : 22-22.5 mm b) Top Ø : 17-17.5 mm c) Bottom Ø: 15-15.5 mm 3. Number of cork stopper: #5 4. Must perfectly fit the 16 x 150 mm test tube 5. Must be free from defect of discontinuities in the cork tissue such as "lung", exfoliation, and insect, ant/worm galleries and all other defects not stated herein. 6. Packed in a resealable plastic bag 7. With brand printed permanently on the resealable plastic bag 8. Must be brand new 		
8	Crucible with lid/cover	<p>Functional Specifications: Used as a container to heat metals or other substances may be melted or subjected to very high temperatures</p> <p>Performance Specifications: Must be able to contain elements, compounds, metals, organic compounds or other substances to be melted or subjected to very high temperatures to determine mass relationship in a chemical reaction</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a high/tall form cylindrical crucible 2. Capacity : 30 mL 3. Material : Porcelain, with the following dimensions: <ol style="list-style-type: none"> a) Height : 43-50 mm b) Base diameter: 24-26 mm c) Top diameter: 33-40 mm 4. Glazed inside and out, except outside bottom and rim. 5. With crucible cover completely glazed except for rim. 6. Must be able to stand solidly flat/is stable when placed on a level surface 7. Must be free from breakage, cracks, chipped rims and sharp edges, surface irregularities and all other defects not stated herein 8. Comes with a brand printed permanently in the compartmentalized sturdy box 9. Must be brand new 		
9	Dish, Evaporating, 75 mL	<p>Functional Specifications: Used to contain/hold substances and to heat chemical solutions gradually, driving off the water to leave residual chemical solute</p> <p>Performance Specifications: Must be able to contain/hold substances and to demonstrate evaporation, as one of the techniques in separating mixtures, by heating chemical solutions gradually, driving off the water to leave residual chemical solute</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a deep form, broad, and wider at the top, with round bottom 2. Material : Porcelain, with the following dimensions: <ol style="list-style-type: none"> a) Diameter : 80-82 mm b) Height/depth : 30-35 mm high 3. Capacity: 75 mL 4. With pouring lip/spout 5. Must be free from breakage, cracks, chipped rims and sharp edges, other surface irregularities and other defects not stated herein. 6. Must be able to contain the salt solution for an experiment on 		

		<p>evaporation</p> <p>7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein.</p> <p>8. Each dish is individually packed, wrapped in paper, and packed in a sturdy box"</p> <p>9. Comes with a brand printed permanently in the sturdy box</p> <p>10. Must be brand new</p>		
10	Distillation set-up: Condenser, Liebig-type	<p>Functional Specifications: Used to condense the water vapor into its liquid state producing a distillate</p> <p>Performance Specifications: Must be able to condense the water vapor into its liquid state producing a distillate, used in distillation, as one of the simple separation techniques</p> <p>Design Specifications:</p> <p>1. Features two concentric straight glass tubes, the inner one being longer and protruding at both extremities, surrounded by a water jacket with sealed inner tube and outer tube of an inner straight tube surrounded by an outer jacket tube, the cool water flows through the outer jacket to condense the vapor in the inner tube, having a better cooling performance than air condenser.</p> <p>2. Material : Transparent, smooth, clear, bubble-free borosilicate glass, with the following dimensions:"</p> <p>a) Tubulation OD: 9-15 mm</p> <p>b) Jacket OD : 40- 43 mm</p> <p>c) Jacket length : 300-301 mm</p> <p>d) Over-all Length: 458-460 mm</p> <p>3. With the following permanent inscriptions and numbers permanently enamelled onto the glass:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Ground cone and socket joint: 29/32</p> <p>4. With sealed inner tube</p> <p>5. With Standard Taper Outer and Inner Joints permanently enamelled onto the glass the glass</p> <p>5. With a drip tip at the bottom</p> <p>6. Accessories:</p> <p>a) One (1) pc rubber stopper that will fit upper (inlet) tube</p> <p>i) Number of rubber stopper : #3</p> <p>ii) Number of hole : One (1) hole</p> <p>iii) Diameter of hole : 5.0-5.5 mm</p> <p>iv) Hardness : 40-45 Duro</p> <p>b) Rubber tube</p> <p>Material of rubber Hose : Non-tacky, Latex rubber tube with the following dimensions:</p> <p>i) Inner diameter : Ø 8.0-8.5 mm</p> <p>ii) Outer diameter : Ø 12.0-12.5 mm</p> <p>iii) Length : 3000-3005 mm long</p> <p>iv) Color of rubber tube : Amber</p> <p>7. The glass is wrapped in bubble wrap, enclosed in a polystyrene and packed in a sturdy box while the rubber stopper /tube is placed in a resealable plastic bag.</p> <p>8. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein</p> <p>9. Must be able to produce a distillate during experiment on Distillation using this item as part of the whole set</p> <p>10. Must have User's Manual in English on the installation, use and care, proper storage with repair and maintenance</p> <p>11. With Activity Sheets/Teacher's Manual in English</p> <p>12. For numbers #10 to 11; the technical specifications (a-e) must be followed:</p> <p>a) For Contents List of materials, In Table form</p> <p>b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format "</p> <p>i) With sentences grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied "</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) in 0.3 mm minimum thickness plastic laminated keycard</p>		

		<p>that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:</p> <ul style="list-style-type: none"> i) Paper Size : A4 size , 80 gsm ii) Font : Times New Roman iii) Font size : 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled <p>13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>14. Must have a brand enamelled permanently onto the glass</p> <p>15. Must be brand new</p>		
11	Distillation set-up: Distilling Flask, borosilicate, 250ml,	<p>Functional Specifications: Used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique</p> <p>Performance Specifications: Must be used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a long neck, a side arm that facilitates condensation, and a round bottom for uniform heating . 2. Material : Clear, transparent, bubble-free borosilicate glass with a beaded rim with the following dimensions: <ul style="list-style-type: none"> a) Flask Height : 240-250 mm b) Side Arm Length: 129-130 mm c) Side arm : 76 to 78 mm below the top of the neck 3. With the following permanent inscriptions and numbers permanently enamelled onto the glass: <ul style="list-style-type: none"> a) Capacity: 250 mL b) Manufacturer's name or trademark c) With permanent large white marking spot 4. Supplied with an accessory <ul style="list-style-type: none"> a) rubber stopper that fits the mouth of the distilling flask <ul style="list-style-type: none"> i) Hardness: 40-45 Duro ii) Number of hole : One (1) iii) Diameter of hole: 5-5.5 mm 5. Wrapped in bubble wrap, enclosed in a polystyrene and packed in a padded sturdy box 6. Must be free from breakage, cracks, chipped rims and sharp edges, striae, surface irregularities and all other defects not stated herein 7. Must be able to produce a distillate during an experiment on Distillation using this item as a part of the distillation setup 8. Must have a brand enamelled permanently onto the glass 9. Must be brand new 		
12	Double burette clamp	<p>Functional Specifications: Used to hold and secure two burettes on a stand, so that each burette is fixed and more convenient for the experiment.</p> <p>Performance Specifications: Must be used to hold and secure two burettes simultaneously on a stand, so that the burettes are fixed and more convenient to perform acid-base titration experiment to determine concentration of solutions.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a double Y-shaped or butterfly-shaped items which have spring action clamps. 2. Material of body: Die cast aluminum with chemical resistant white enamel finish,with the following dimensions: <ul style="list-style-type: none"> Length range : 245-254 mm Width range : 120-127 mm Mounting hole diameter (Φ): 15-36 mm 3. Color of body : White enamel 4. Material of sleeves/jaws/grips : Vinyl or rubber for excellent grip 5. Color of sleeves/jaws/grips : Colored <ul style="list-style-type: none"> Distance between sleeves/jaws/grips : 85 mm (min) 6. With 4 spring action clamps, 2 on each opening 7. With two separate adjusting knobs or squeeze clamping mechanism 		

		<p>8. Color of adjusting knobs : Colored</p> <p>9. Mounts directly to standard support rod with built in hook connector.</p> <p>10. The dual metal burette clamp supports burettes from 10-100 mL (10-100 cc).</p> <p>11. They can be attached to support stand rods from 16 mm to 17 mm diameter</p> <p>12. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein.</p> <p>13. Comes with a brand marked permanently onto the body/box</p> <p>14. Must be brand new</p>		
13	Electrolysis Apparatus, student-type (Brownlee)	<p>Functional Specifications: Used to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 2:1 ratio of hydrogen & oxygen gases respectively, by passing DC current through water.</p> <p>Performance Specifications: Must be able to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 2:1 ratio of hydrogen & oxygen gases respectively, by passing DC current through water. Positive results occur:</p> <p>a) When an ember in a stick is introduced onto the test tube with hydrogen gas, it pops.</p> <p>b) If the gas is oxygen, the ember must glow more</p> <p>Design Specifications:</p> <p>1. Shape of Jar : Cylindrical container with a flat bottom, with a wide mouth and a small turned-out lip for pouring</p> <p>2. Material of jar: Clear, transparent, smooth, and bubble-free borosilicate glass, with the following dimensions:</p> <p>a) Diameter : 114-130 mm</p> <p>b) Height : 127-160 mm</p> <p>3. Capacity: 1000 mL</p> <p>4. Comes with two (2) electrodes</p> <p>a) Material of two electrodes: Platinum</p> <p>b) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the electrodes, is platinum, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>5. Comes with an acid-proof insulating support to hold the two binding posts (one red, one black)</p> <p>6. Holder of two test tubes : Two (2) spring clips</p> <p>7. With two (2) reusable test tubes with graduations</p> <p>a) rimless</p> <p>b) graduated from its bottom to top. Zero starts at bottom and 25- 27 mL on top/mouth of test tube</p> <p>c) Material of test tubes : Borosilicate , clear, smooth, transparent and bubble-free reusable glass, free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein, with the following dimensions:</p> <p>c1) Diameter: 18 mm</p> <p>c2) Length : 150-151 mm long</p> <p>c3) Capacity : 25-27 mL</p> <p>d) With heavy uniform wall thickness, excellent heat resistance, round bottom glass</p> <p>e) With permanent graduation lines of approx. volume and inscriptions in high contrast fine, clean, continuous and of uniform width, and in colored enamel.</p> <p>f) With Certification from the manufacturer that the test tubes are reusable and not disposable</p> <p>8. Comes with power source: 220 V -240 V AC input)/ (0-12 V) DC output, and with switch selector</p> <p>9. Comes with 9 V battery with one (1) battery snap</p> <p>10. Comes with two (2) connecting wires (1 red, 1 black)</p> <p>a) Length : 304-305 mm</p> <p>b) Type of wire : Stranded</p> <p>c) Gauge no. : 20 - can be seen printed on the insulation of</p>		

			<p>the wire</p> <p>d) Comes with with alligator clip soldered on one end of the wires with banana plugs soldered on the other end of each wire (1 red, 1 black)</p> <p>12. Comes with two (2) replacement graduated test tubes</p> <ol style="list-style-type: none"> rimless graduated from its bottom to top. Zero starts at bottom Material of test tubes : Borosilicate , clear, transparent and bubble-free-glass, with the following dimensions: Diameter :18.0-18.5 mm Length :150-151mm long Capacity : 25 mL With heavy uniform wall thickness, excellent heat resistance, round bottom glass With permanent graduation of approx. volume and inscriptions in high contrast white enamel. With brand etched/printed permanently onto the item <p>13. Comes with two (2) solid rubber stoppers to fit perfectly the two (18 x 150 mL) test tubes</p> <p>14. Must be able to separate water into its elements producing two gases (hydrogen and oxygen) with a 2:1 ratio,</p> <ol style="list-style-type: none"> 2 mL hydrogen: 1 mL oxygen; 4 mL hydrogen: 2 mL oxygen, 6 mL hydrogen: 3 mL oxygen, 8 mL hydrogen: 4 mL oxygen, 10 mL hydrogen: 5 mL oxygen, and so on until 6-8 mL of the has been collected for hydrogen gas, during the Electrolysis of Water experiment, and then test for the gases. Testing for each of the gases: <ol style="list-style-type: none"> For the gas collected at the negative electrode, a popping sound must be produced - Hydrogen gas For the gas collected at the positive electrode, the ember must glow more - Oxygen gas supports combustion" <p>15. With a well written Operations Manual and Assembly Guide in English</p> <p>16. With sample Activity Sheets/Teacher's Manual in English</p> <p>17. With Detailed instructions provided.</p> <p>18. For numbers 15-17, the following technical specifications from (a-e) must be followed:</p> <ol style="list-style-type: none"> For List of materials, In Table form For User's Manual, Teacher's Guide, Student Worksheets, Instruction Sheets/ Assembly Guides, In sentences format <ol style="list-style-type: none"> With sentences grammatically correct and With correct spelling and terminologies, punctuations and others In original print, not photocopied In colored pictures, drawings/illustrations in 0.3 mm minimum thickness plastic keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows: <ol style="list-style-type: none"> Paper Size : A4 size , 80 gsm Font : Times New Roman Font size : 12 Orientation:Portrait Margins on all sides with 2 point width border line Line with arrow head of 1.25 point with width shall point to the specific part being labeled <p>19. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:</p> <ol style="list-style-type: none"> Training Video Contents: <ol style="list-style-type: none"> Name of the equipment Parts of the equipment Instruction on how to use the equipment Sample Experiment/Activity using the equipment Maintenance of the equipment Troubleshooting Storage and safekeeping (include cleaning) of the equipment Training Video details: <ol style="list-style-type: none"> Shall be in MP4 format. Shall be saved in a USB 3.0 Flash Drive. Shall have a High-Definition resolution of at least 1080p. 	
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14	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	<p>Functional Specifications: Used to :</p> <p>a) contain/hold a small chemical reaction,</p> <p>b) mix solids and liquids,</p> <p>c)heat substances over a Bunsen/alcohol burner's flame up to over 100 °C or</p> <p>d)collect them in a titration/distillation experiment</p> <p>Performance Specifications: Must be able to:</p> <p>a) contain/hold a small chemical reaction ,</p> <p>b) mixes solids and liquids during chemical reaction,</p> <p>c) heats substances up to 100°C over a Bunsen burner's flame up to 250 mL, or</p> <p>d) serves as a reaction vessel in a titration experiment, and to collect distillate during distillation</p> <p>Design Specifications:</p> <p>1. Features a conical body, a cylindrical short neck , narrow mouth, with sloping sides, beaded rim, and with a flat bottom</p> <p>2. Material : Clear, and transparent bubble-free, smooth, borosilicate, glass with the following dimensions:</p> <p>a)Outside diameter: 80-82 mm</p> <p>b)Height: 130-132 mm</p> <p>c) Thickness: 1.5 to 2.0mm</p> <p>b) Neck inside diameter range : 28 to 30 mm</p> <p>3. With uniform wall thickness</p> <p>4. With narrow mouth, heavy duty beaded rim, graduated</p> <p>5. With easy pour spout</p> <p>6. With permanent durable white enamel graduations of approximate volumes, large white block letters,numbers and easy to read inscriptions enamelled onto the glass, which includes the following:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Capacity: 250 mL</p> <p>c) With large white marking spot</p> <p>d) With single graduated metric scale</p> <p>d1) Graduation range : 50 -200 mL</p> <p>d2) Graduation interval: 25 mL</p> <p>d3) Graduation starts at: 50 mL in 25 mL increments</p> <p>e) Tolerance: ±6% and other inscriptions enamelled onto the glass</p> <p>7. Wrapped in paper and individually packed in a compartmentalized box</p> <p>8. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>9. Must be able to withstand heating of water up to 150 deg C</p> <p>10. Placed in bubble wrap and packed in a sturdy box to help prevent glass breakage.</p> <p>11. Comes with a brand enamelled permanently onto the glass</p> <p>12. Must have a brand printed permanently on the glass</p> <p>13. Must be brand new</p>		

15	Funnel, borosilicate, fluted	<p>Functional Specifications: Used to direct the smooth flow of the liquid or fine-grained substances into another container to prevent spills</p> <p>Performance Specifications: Must be able to direct the smooth flow of the liquid or fine-grained substances into another container to prevent spills</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : 60 ° angle, Fluted short stem funnel 2. Shape: A wide, inverted conical top with narrow short circular tube at the bottom, with depressed inside flutings in 60° angle 3. Material: Borosilicate, clear, transparent, bubble-free glass, with the following dimensions: <ol style="list-style-type: none"> a) Top outside diameter: 75-76 mm b) Stem outer diameter : 8-8.5 mm c) Stem length : 75-76 mm d) Total Height : 139-140 mm 4. With heavy beaded rim/edge and heavy uniform wall for strength. 5. With slanted fire polished tip, filter angle (angled 60°) and depressed inside fluting help reduce filtering time " 6. Wrapped in paper, enclosed in bubble wrap, and individually packed in a sturdy box 7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein 8. Comes with a brand and 60° embossed permanently onto the glass 9. Must be brand new 		
16	Glass Tubing, Ø 6 mm x Ø 4 mm x 1500 mm long	<p>Functional Specifications: Used to contain/hold/mix liquids or gases during chemical reactions and to connect other pieces of equipment/glasswares to a gas or liquid assembly</p> <p>Performance Specifications: Must be able to:</p> <ol style="list-style-type: none"> a) be bent to connect other pieces of equipment/glasswares to a gas or liquid assembly like in the activity " Flowing Up" and connect Florence flask to the Liebig condenser as a substitute for distilling flask for Distillation set up b) contain/hold/mix liquids or gases during chemical reactions, to relate the rate of gas effusion with molar mass and demonstrate Graham's law of effusion in an experiment where a white ring mass is observed <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shape : Long slender hollow glass 2. Material : Soda lime, clear, transparent, bubble-free glass tubing, with the following dimensions: <ol style="list-style-type: none"> a) Outside diameter : 6.0-6.5 mm b) Wall thickness : 1.0-1.2 mm c) Length: 1219-1500 mm 3. With fire polished ends 4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box 5. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein 6. Comes with a brand printed permanently on its packaging 7. Must be brand new 		
17	Manometer, Open U-tube	<p>Functional Specifications: Used to indicate the difference in the heights of the manometric liquid to measure pressure</p> <p>Performance Specifications: Must be able to indicate the difference in the heights of the manometric liquid to measure pressure by getting the pressure difference</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : Differential pressure manometer 2. Shape : U-shaped glass tube partially filled with liquid, with no moving parts and requires no calibration 3. Material : Glass 4. With a 50-52 cm arm with funnel top on one arm and 4.5-5.5 cm bent (90°) with 15-16 mm rifted tip on another arm for easy connection 		

			<p>5. U-tube is mounted on a board, fixed on a wooden stand for vertical mounting using metal clips</p> <ol style="list-style-type: none"> a) Material of stand : Wood/en b) Dimensions of back plate <ol style="list-style-type: none"> i) Length : 540-542 mm ii) Width : 90-92 mm <p>6. A millimeter scale is fitted between the arms of the tube.</p> <ol style="list-style-type: none"> a) Scale having graduation range: 0-50 cm b) Graduation increment: 1 mm, with 0 at the bottom <p>7. Accessories:</p> <ol style="list-style-type: none"> a) With latex tubing, glass wall 2 mm thickness, 7.5-8.0 mm inner diameter. <ol style="list-style-type: none"> i) Material of rubber tubing: Non-toxic non-tacky latex rubber tubing for the laboratory activity. ii) Length of rubber tube: 3000-3005 mm <p>8. Stand with glass tube placed in bubble wrap, enclosed in bubble wrap and packed individually in a sturdy box</p> <p>9. Accessories enclosed in resealable plastic bag</p> <p>10. With User's Manual in English</p> <p>11. With Assembly Guides and Activity Sheets</p> <p>12. For numbers #10 and 11; they must be:</p> <ol style="list-style-type: none"> a) In Table form for List of materials, in A4 size, glossy paper, laminated b) Sentences format for instruction sheets/assembly guides <ol style="list-style-type: none"> i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) Printed in original copy, not photocopied d) In colored drawings/illustrations e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows: <ol style="list-style-type: none"> i) Paper Size : A4 size , 80 gsm ii) Font : Times New Roman iii) Font size : 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled <p>13. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein.</p> <p>14. Individually packed in a sturdy box</p> <p>15. Comes with a brand printed permanently onto the wooden stand</p> <p>16. Must be brand new</p>		
18	Mortar and Pestle, porcelain, 150 mL.		<p>Functional Specifications: Used to pulverize/mash/grind and to mix materials in a mortar using a pestle</p> <p>Performance Specifications: Must be able to pulverize/mash/grind and mixes materials in a mortar using a pestle to demonstrate how particle size affects solubility and the rate of chemical reaction. Decreasing the size of the particles increases the rate of dissolving and speeds up the rate of reaction because the surface area of the reactant has been increased.</p> <p>Design Specifications:</p> <p>A. Mortar</p> <ol style="list-style-type: none"> 1. Shape of mortar : Deep form, bowl shape, with wide mouth , and with deeply molded, smooth rounded bottom 2. Material for mortar and pestle: Porcelain, with the following dimensions: <ol style="list-style-type: none"> a) Outside diameter : 130-132 mm b) Height/Depth : 65-70 mm 3. Capacity: 150 mL 4. With pouring lip 5. With unglazed grinding surface (interior) and uniformly glazed exterior <p>B. Pestle:</p> <ol style="list-style-type: none"> 6. Shape of pestle: Cylindrical with bulbous bottom, with the following dimensions: <ol style="list-style-type: none"> a) Length range : 133-135 mm and b) Diameter range: 28-30 mm diameter at its widest point. 		

		<p>7. Material of pestle: A heavy bat-shaped porcelain</p> <p>8. Uniformly glazed on its handle and rough on opposite end</p> <p>9. The set is individually wrapped, enclosed in a bubble wrap and packed in a sturdy box</p> <p>10. Must be free from breakage, cracks, chipped rims, sharp edges, all surface irregularities and all other defects not stated herein</p> <p>11. Comes with a brand marked permanently on the body/box</p> <p>12. Must be brand new</p>		
19	Osmosis Apparatus	<p>Functional Specifications: Used to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube</p> <p>Performance Specifications: Must be able to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube, to describe/demonstrate the effect of concentration on one of the colligative properties (osmotic pressure) of solutions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a long shaft of tube with a reservoir and a funnel like/flared rim section at the top and at the bottom. The shaft is designed to allow insertion through a small hole present in a Y-shaped support stand giving way for the tube to be inserted into a container. 2. Comes as a complete set, which is composed of the following items: <ol style="list-style-type: none"> a) With one (1) pc battery jar = 600-605 mL cap b) With one (1) pc double thistle tube with brand name etched onto the glass <ol style="list-style-type: none"> b1) Shape of double thistle tube: A long shaft of tube that ends in a reservoir bulb with a funnel shaped/flared rim at the top and bottom part b2) Material of double thistle tube and jar : Smooth, clear, transparent free from bubbles, striae, or other imperfections borosilicate glass, with the following dimensions: Length of double thistle tube : 405-410 mm Diameter of each thistle tube (top and bottom): 29-30 mm Diameter of glass tube: 14-15 mm c) With one (1) pc stable Y-shaped metal support stand, safe to use, and absence/free of all sharp edges, all surface imperfections/irregularities and all other defects not stated herein <ol style="list-style-type: none"> c1) Shape of metal support stand: Y-shaped support stand c2) Material of support stand: Aluminum c3) With a black plastic adjusting screw at the rear end with the red adjusting screw near the center of the Y-support stand used to adjust the opening of the stand when the double thistle tube is mounted vertically in place d) Comes with ten (10) pc semi-permeable membrane 3. Each item is individually placed in a snap fit organizer shaped into each item and packed as a complete set in a padded sturdy polystyrene box 4. With Instruction Manual and Activity Sheets 5. With a well written User's Manual (Assembly guides) and Activity Sheets in American English, with technical specifications details(a-e) as follows: <ol style="list-style-type: none"> a) original print b) A4 size copy paper (80 gsm) c) With colored pictures, drawings/illustrations d) Margin of 1/2 inch on all sides: with 2 point width border line e) Lay out orientation : Portrait f) Title: OSMOSIS APPARATUS shall be placed on the top center <ol style="list-style-type: none"> i) Font style: Times New Roman ii) Font size: 36 iii) UPPERCASE iv) BOLD g) Labels <ol style="list-style-type: none"> i) Font style : Times New Roman ii) Font size: 14. iii) First letter of the label is capitalized 		

		<p>iv) Line with arrowhead of 1.25 width shall point to the specific part being labeled</p> <p>h) Sentences must be grammatically correct and with correct spelling, punctuation and terminologies</p> <p>i) with colored illustrations and drawings</p> <p>j) with 0.3 mm minimum thickness plastic laminated in thick plastic</p> <p>6. Must be free from rust and dirt, breakage, cracks, chipped rims, sharp edges, other surface irregularities and all other defects not stated herein</p> <p>7. Placed in bubble wrap, with storage slots for each item enclosed in polystyrene and packed as a set in a padded box to help prevent glass breakage.</p> <p>8. Comes with a brand permanently etched onto the double thistle tube and in the box</p> <p>9. Must be brand new</p>		
20	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	<p>Functional Specifications: Used to contain/store and to provide UV protection of prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents</p> <p>Performance Specifications: Must be able to contain/store and to provide UV protection for the prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents.</p> <p>Design Specifications:</p> <p>1. Shape : Cylindrical narrow-mouth bottle</p> <p>2. Material : Borosilicate, smooth, bubble-free glass with the following dimensions:</p> <p>a) Bottle diameter range: 66-72 mm</p> <p>b) Neck I.D. range : 23-28 mm</p> <p>c) Over-all height: 130 to 150 mm</p> <p>3. Color: Amber</p> <p>4. With approximate volumes, capacity, and other markings are in permanent white enamel which resists aggressive washing solutions</p> <p>a) Manufacturer's name or trademark</p> <p>b) 250 mL</p> <p>c) white marking field/spot in permanent white enamel</p> <p>5. With octagonal plastic stopper</p> <p>Socket size: 19/26 that fits the mouth well</p> <p>6. With a white marking field/spot in permanent white enamel</p> <p>a) logo/brand name</p> <p>b) 250 mL</p> <p>7. Wrapped in paper, enclosed in bubble wrap and packed individually in a padded sturdy box</p> <p>8. Must be free from breakage, cracks, chipped rims, sharp edges, striae, all surface irregularities including all other defects not stated herein</p> <p>9. Comes with a brand enamelled permanently onto the glass</p> <p>10. Must be brand new</p>		
21	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	<p>Functional Specifications: Used to hold/ contain/store prepared solutions/ substances</p> <p>Performance Specifications: Must be able to hold/contain/store prepared solutions/substances</p> <p>Design Specifications:</p> <p>1. Shape: Cylindrical wide-mouth bottle</p> <p>2. Material: Borosilicate, clear, smooth, transparent and bubble-free glass, with the following dimensions:</p> <p>a) Bottle diameter : 69 mm to 73 mm</p> <p>b) Mouth diameter: 34 mm to 44 mm</p> <p>c) Height : 129 mm to 142 mm</p> <p>3. Features no-drip pour lip</p> <p>4. With ground-in glass stopper</p> <p>5. With air tight seal</p> <p>6. With approximate volumes, capacity, and other markings are in permanent white enamel/stain which resists aggressive washing solutions</p> <p>a) Manufacturer's name or trademark</p> <p>b) 250 mL</p> <p>c) white marking field/spot in permanent white enamel</p> <p>7. Wrapped in paper, enclosed in bubble wrap and packed individually in a sturdy box</p>		

		<p>8. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein</p> <p>9. Comes with a brand enamelled onto the glass</p> <p>10. Must be brand new</p>		
22	Rubber Stopper # 0 (for Ø 16mm test tube)	<p>Functional Specifications: Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination</p> <p>Performance Specifications: Must be able to seal the openings of 16 x 150 mm test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shape: Cylindrical with a tapered bottom end 2. Material : Rubber compound with the following dimensions: <ol style="list-style-type: none"> a) Height : 25-25.5 mm b) Top Ø : 17-17.50 mm c) Bottom Ø : 13-13.5 mm 3. Hardness : 40-45 Duro 4. Packed in resealable plastic bag 5. With no. 6 embossed onto the rubber stopper 6. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein 7. Comes with a brand marked permanently in the bag 8. Must be brand new 		
23	Spoon-spatula, porcelain and glazed	<p>Functional Specifications: Used to hold/contain and transfer solids and liquids from one container to the other</p> <p>Performance Specifications: Must be able to hold/contain and transfers solids and liquids from one container to the other</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a white, broad, flat, flexible blade (spatula) on one end and a spoon on the other end. 2. Material : Uniformly glazed smooth finish porcelain <ol style="list-style-type: none"> a) Capacity: 0.3 mL b) Over all Length : 121-125 mm 3. Must be free from breakage, cracks,chipped edges and all other defects not stated herein 4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box. 5. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein. 6. Comes with a brand marked permanently in the box 7. Must be brand new 		
24	Stirring Rod, Ø 6 mm x 250 mm long	<p>Functional Specifications: Used to mix liquids and solids</p> <p>Performance Specifications: Must be able to mix liquids and solids well to speed up the dissolving process and increases the rate of reaction</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a long, slender cylindrical solid glass, with the same thickness and slightly longer than a drinking straw and with rounded fire polished ends. 2. Material: Clear, transparent bubble-free stir stick solid borosilicate glass with the following dimensions: <ol style="list-style-type: none"> a) Diameter(Ø) : 6-6.3 mm b) Length: 250-254 mm long 3. With rounded and fire polished ends 4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box 5. Must be free from breakage, cracks, chipped unpolished ends, all other surface imperfections including all other defects not stated herein 6. Comes with a brand marked permanently in the box 7. Must be brand new 		
25	Test tube brush	<p>Functional Specifications: Used to clean test tubes and other small sized glasswares</p>		

		<p>Performance Specifications: Must be able to clean test tubes and other small-sized glasswares with densely filled radial tip and head brush to make complete contact with walls, corners and bottom.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a radial tufted tip white nylon bristles and brush head lined against a rather sturdy wire handle with a looped end to make complete contact with walls, corners and bottom to clean test tubes and other small sized glasswares . 2. Material of bristles : Medium stiff nylon with the following dimensions: <ol style="list-style-type: none"> a) Diameter of bristle section: 18-19 mm b) Length of bristle section : 82-84 mm c) Over-all length: 228 -229 mm 3. Material of handle: Galvanized steel wire 4. Type of wire handle : Common loop twisted wire 5. With circular wire loop for hanging 6. Packed in a resealable plastic bag 7. Must be free from rust, sharp edges, all other surface irregularities including all other defects not stated herein 8. Comes with a brand marked permanently in the box 9. Must be brand new 		
26	Test Tube, borosilicate, Ø 16 mm x 150 mm long	<p>Functional Specifications: Used to contain/hold a small chemical reaction , to mix small quantities of solids and liquids, and to heat small quantities of substances</p> <p>Performance Specifications: Must be able to contain/hold a small chemical reaction and , mixes solids and liquids, heats small quantity of substances up to more than 100°C over a Bunsen burner's flame</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a finger-like length of glass tubing, open at the top, usually with a rounded lip at the top, and a rounded 'U' shaped bottom 2. Material of test tube: Borosilicate , clear, transparent and bubble-free, reusable glass, with rim, with the following dimensions: <ol style="list-style-type: none"> a) Outside Diameter: 15.8-16.0 mm b) Thickness: 1.3 -1.4 mm c) Length: 150-152 mm d) Comes with a certification from the manufacturer that the test tube is reusable and not disposable 3. Capacity: 20 mL 4. With heavy uniform wall thickness, excellent heat resistance 5. With large, white enamel marking spot 6. Test tubes must be reusable (not disposable) 7. Wrapped individually in tissue paper, enclosed in bubble wrap and packed in compartmentalized box 8. Must be free from breakage, cracks, chipped rims, surface irregularities and all other defects not stated herein 9. Comes with a brand enamelled permanently in the glass 10. Must be brand new 		
27	Tong, Crucible	<p>Functional Specifications: Used to lift and hold crucibles,remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container</p> <p>Performance Specifications: Must be able to lift and hold crucibles, remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features a scissor-like and a long bent neck tongs, with two anti-skid pincers or pieces of metals that concave together, which allow the users to grasp a hot crucible, flasks, evaporating dishes, or even small beakers 2. Material : Stainless steel,durable, stable, rust and heat resistant <ol style="list-style-type: none"> a) Color: Silver b) Finish: Smooth c) Overall Length: 228 -229 mm 3. With riveted joints 4. With serrated tips. 		

		<p>5. Enclosed in resealable bag and packed in a sturdy box</p> <p>6. Must be free from rust, dirt, cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein</p> <p>7. Comes with a brand marked permanently in a box</p> <p>8. Must be brand new</p>		
28	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	<p>Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 25 mL</p> <p>Performance Specifications: Must be able to hold/contain/store/mix small quantities of samples up to 25 mL</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : Threaded Screw cap 2. Shape : Bottle-like shape with a threaded neck, solid plastic closure and with a flat bottom. 3. Material : Borosilicate clear, transparent, and bubble-free glass, with the following dimensions: <ol style="list-style-type: none"> a) Outside Diameter : 25-30 mm b) Length: 60-80 mm 4. With screw- type solid plastic cap 5. Shape of neck : Cylindrical, round 6. Neck finish : Continuous thread 7. Cap Color: Colored 8. Cap Attached: No 9. Cap Material : Plastic 10. Closure style : Solid top, screw thread cap 11. Material: Plastic <ol style="list-style-type: none"> a)Diameter : 25-30 mm b) Length: 60-80 mm 12. Capacity: 25 mL 13. Packed individually in a compartmentalized/partitioned box 14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein 15. Comes with a brand marked permanently on the box 16. Must be brand new 		
29	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	<p>Functional Specifications: Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 50 mL</p> <p>Performance Specifications: Must be able to hold/contain/store/mix samples/solutions/substances up to 50 mL</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : Threaded Screw cap 2. Features a bottle-like shape with a threaded neck, screw cap plastic closure and with a flat bottom 3. Material : Borosilicate,clear, transparent, and bubble-free glass with the following dimensions: <ol style="list-style-type: none"> a) Outside Diameter : 25-30 mm b) Length : 100-108 mm 4. Capacity: 50 mL 5. Shape of neck : Cylindrical, round 6. Neck finish : Continuous thread 7. Cap Color :Colored 8. Cap Attached: No 9. Cap Material : Plastic 10. Closure style : Solid top, screw thread cap 11. Material : Plastic <ol style="list-style-type: none"> a)Diameter : 24-26 mm 11. Packed individually in a compartmentalized box 12. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein 13. Comes with a brand marked permanently on the box 14. Must be brand new 		
30	Watch Glass, Ø 90 mm	<p>Functional Specifications: Used to:</p> <ol style="list-style-type: none"> a) cover glasswares like beakers b) evaporates solvents in a sample and c) holds/contains liquids and solids prior to heating. <p>Performance Specifications: Must be able to:</p> <ol style="list-style-type: none"> a) cover glasswares like beakers 		

			<p>b) evaporate solvents in a sample and c) hold/contain liquids and solids prior to heating.</p> <p>Design Specifications: 1. Shape : Circular concave 2. Material : Borosilicate, clear, transparent, and bubble-free glass with the following dimensions: a) Diameter : 90-91 mm b) Thickness range : 1.5 mm to 2 mm 3. Fire-polished rims/edges 4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box 5. Must have fire polished edges/rims, be free from breakage, cracks, chipped and sharp edges, surface irregularities including all other defects not stated herein 6. Comes with a brand marked permanently in the box 7. Must be brand new</p>		
SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - MATTER					
6	1	Balance, Toploading, Electronic	<p>Functional Specifications: Used to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability</p> <p>Performance Specifications: Must be able to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability to determine mass relationship in a chemical reaction</p> <p>Design Specifications: 1. Type : Digital 2. Shape of pan : Rectangular 3. Material of pan : Stainless steel 4. Removable high strength stainless steel weighing platform 5. Load/Capacity : 500 g 6. Readability/Accuracy : 0.01 g 7. Repeatability : 0.01 g 8. Comes with 500 g span calibration mass 9. Power Supply : 220-240V/ 50Hz 10. With large Liquid crystal display (LCD) with backlight 11. With multiple weighing units and overload protection 12. With automatic calibration 13. With standard RS 232 interface 14. Parts counting and percentage weighing 15. With accessories, such as: a) the power cord, b) AC Adapter and c) 4 AA batteries 16. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 17. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: I. Training Video Contents: a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).</p>		

		<p>18. Must be rust-free, free from dirt and breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein</p> <p>19. Comes with a brand marked permanently onto the item</p> <p>20. Must be brand new</p>		
2	Balance, Triple Beam, with tare, 2610-gram	<p>Functional Specifications: To measure mass of solids, liquids and gases accurate up to 0.1 g readability</p> <p>Performance Specifications: Must be able to measure mass of solids and liquids accurate up to 0.1 g readability to determine mass relationship in a chemical reaction</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Features three graduated-tier beam with pan 2. Display : Easy to-read deep-notched, tiered beams and dial plates 3. Material of weighing pan: Stainless Steel 4. Shape of weighing pan: Circular 5. Pan size diameter : 150-151 mm 6. Material of base : Cast metal with corrosion resistant smooth finish 7. With spring, loaded zero-adjust compensator 8. With self-aligning agate bearings, precision ground steel knife edges 9. With magnetic dampening to minimize oscillation and speed weighing 10. With adjustment knob for taring 11. With iron stand assembly (stand rod and C clamp) for fastening on the table and suspending the triple beam balance on air for specific gravity determination 12. Maximum Capacity : 2610 grams 13. Accuracy : 0.10 gram readability 14. With three beam graduations: <ol style="list-style-type: none"> a) Rear beam : 100 g X 10 g b) Center beam : 500 g X 100 g c) Front beam : 10 g X 0.1 g 15. Equipped with three separate masses/counterweights: <ol style="list-style-type: none"> a) 2 pc 1,000 grams counter weights b) 1-pc 500 grams counter weight 16. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin 17. With English User's manual that contains Operation guide and also indicates formula and procedure in determining specific gravity and taring. 18. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: <ol style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). 19. Must be free from rust and dirt, breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein 		

		<p>20. Enclosed in a polystyrene and packed in a sturdy box</p> <p>21. Comes with a brand marked permanently onto the item and</p> <p>22. Must be brand new</p>		
3	Calorimeter	<p>Functional Specifications: Used to measure heat effects or heat of reactions</p> <p>Performance Specifications:</p> <p>a) Must be able to measure the heat effects or heat of reactions, the heat of neutralization of an acid and heat of fusion in the laboratory</p> <p>b) to distinguish between exothermic and endothermic processes</p> <p>Design Specifications:</p> <p>1. Features a double-walled cylindrical double wall with air insulation between two polished spun vessels</p> <p>2. Material : Two polished spun aluminum vessels with the following dimensions:</p> <p>A) Outer vessel size:</p> <p>a) Height :100-140 mm</p> <p>b) Diameter : 65-115 mm</p> <p>B) Inner vessel size :</p> <p>a) Height: 72-89 mm</p> <p>b) Diameter : 61-77 mm</p> <p>3. The two are separated by a molded polystyrene insulated separator/insulating wall.</p> <p>4. The outer vessel has a transparent plastic lid/molded Bakelite cover, and with hole for thermometer</p> <p>5. Supplied complete with stirrer, but without thermometer.</p> <p>6. Accessories:</p> <p>a) With a plastic insulator ring or fiber washer for insulating and supporting one vessel within the other, protects the polystyrene insulation against damage and liquid spills.</p> <p>b) Insulated Stirrer</p> <p>c) A clear transparent molded cover or plastic lid with a filler cap, with two holes (one hole is for the rubber stopper that holds the thermometer and the other hole for the stirrer</p> <p>d) Rubber stopper with one hole</p> <p>e) With polystyrene/a fiber separator to insulate the inner vessel</p> <p>f) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the insulation of the calorimeter, is polystyrene, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>7. With Instruction Manual in English that contains precise instructions on how to conduct common calorimetry experiments.</p> <p>8. With User's Manual on the use, care, maintenance, trouble shooting and proper storage in English</p> <p>9. With Activity Sheets/Teachers Manual in English</p> <p>10. For numbers #7 to 9; technical specifications (a-e) must be followed:</p> <p>a) For Contents List of materials, In Table form</p> <p>b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:</p> <p>i) Paper Size : A4 size , 80 gsm</p> <p>ii) Font : Times New Roman</p> <p>iii) Font size : 12</p> <p>iv) Margins on all sides with 2 point width border line</p> <p>v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p>		

		<p>11. Must be free from rust and dirt, cracks, scratches, dented rims, sharp edges, surface irregularities including all other defects not stated herein</p> <p>12. Comes with a brand printed permanently on the calorimeter</p> <p>13. Must be brand new</p>		
4	Centrifuge	<p>Functional Specifications: Used as one of the separation techniques for mixtures and compounds when the density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens</p> <p>Performance Specifications: Must be able to separate mixtures and compounds based on density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : Fixed speed 2. Material: Non-toxic plastic, with the following dimensions: <ol style="list-style-type: none"> a) Height : 264-266 mm b) Width : 328-330 mm c) Depth : 328-330 mm d) Certification from the manufacturer of the non-toxicity of the material used 3. Color finish: Black 4. With Angled rotor, 8-Place Centrifuge with Timer 5. With Lid safety shut-off switch 6. Holds 3 mL to 15 mL size tubes 7. With 12 volt DC maintenance-free motor 8. Maximum volume : 120 mL (15 mL x 8) 9. Fuse : 3 amp/ 250 volts 10. Maximum speed : 3,500 rpm with fixed speed control. (blood, urine, etc.) 11. Clear view port in lid for using tachometer 12. Suction-cupped feet to prevent slipping 13. With Auto-off 30-minute timer with bell 14. With power cord 15. Power supply: 110/220 v , with auto-switching power adapter 16. Certification : CE, UL, cUL approved 17. Includes the following: <ol style="list-style-type: none"> a). Eight-place tube rotor b) Eight 15ml tube sleeves c) Eight 13 x 75 mm tube sleeve inserts d) Eight 15 mL round bottom plastic centrifuge tubes with screw cap with white or black print graduations e) Eight 13 x 75mm round bottom plastic centrifuge tubes with screw cap 18. Placed in bubble wrap, enclosed in polystyrene and individually packed in sturdy box 19. With Operations Manual and Assembly Guide in English 20. With sample activity sheets in English 21. For numbers #19 to 20; technical specifications (a-e) must be followed: <ol style="list-style-type: none"> a) For Contents List of materials, In Table form b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format <ol style="list-style-type: none"> i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) In original print, not photocopied d) In colored pictures, drawings/illustrations e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows: <ol style="list-style-type: none"> i) Paper Size : A4 size , 80 gsm ii) Font : Times New Roman iii) Font size : 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled" 		

		<p>22. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:</p> <p>I. Training Video Contents:</p> <ol style="list-style-type: none"> Name of the equipment Parts of the equipment Instruction on how to use the equipment Sample Experiment/Activity using the equipment Maintenance of the equipment Troubleshooting Storage and safekeeping (include cleaning) of the equipment <p>II. Training Video details:</p> <ol style="list-style-type: none"> Shall be in MP4 format. Shall be saved in a USB 3.0 Flash Drive. Shall have a High-Definition resolution of at least 1080p. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. Shall comply an aspect ratio of 4:3. Shall have a cover video pane containing the equipment name and a video pane for each video content. The video, voiceover (audio), and subtitle shall be in sync. The training video shall cover all the above requirement (video contents). <p>23. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein</p> <p>24. Comes with a brand marked permanently onto the label</p> <p>25. Must be brand new</p>		
5	Electrical Conductivity (Conductivity of Solutions) Apparatus	<p>Functional Specifications: Used as a visual demonstration of the electrical conductivity of various liquids/solutions.</p> <p>Performance Specifications: Must be used as a visual demonstration of the electrical conductivity of various liquids/solutions whether it is an/a</p> <ol style="list-style-type: none"> electrolyte - conducts electricity or non-electrolyte - does not conduct electricity . <p>Design Specifications:</p> <ol style="list-style-type: none"> Shape : Cylindrical jar with flat bottom Material of jar: Clear, transparent, smooth, and bubble free glass, with the following dimensions: <ol style="list-style-type: none"> Diameter: 72-75 mm Height : 75-80 mm Capacity of jar/container: 150-200 mL It comes with a jar cover which perfectly fits the glass jar <ol style="list-style-type: none"> Material of jar cover: Plastic Color of jar cover: Green/Any color It consists of an electric lamp (3.0 V) in series with open electrodes It comes with a plastic molded lamp socket It comes with one (1) pc bulb <ol style="list-style-type: none"> Type of bulb: Miniature type Voltage: 3.0 volts Number of extra light bulbs : Ten (10) pc With two (2) binding posts color coded (black and red) for connection to two wire connectors. With two (2) electrodes, which fit inside the glass jar, internally connected to the lamp circuit, namely: <ol style="list-style-type: none"> a copper wire (anode) and a carbon rod (cathode) Length of electrodes : 60-80 mm First power source: 2 AA batteries With 1 pc battery holder Comes with second power source: 220 V -240 V AC input)/(0-12 V) DC output, comes with switch selector Comes with: <ol style="list-style-type: none"> two (2) connecting wires (1 red, 1 black) with alligator clips (1 red, 1 black) soldered on one end of the wire Length of wire : 305-310 mm Type of wire : Stranded 		

		<p>d) Gauge number : 20 - which is printed permanently on the insulation of the wire</p> <p>15. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded box with storage slots for each item to help prevent glass breakage.</p> <p>16. Must be free from breakage, cracks, chipped rims and sharp edges surface irregularities and other defects not stated herein</p> <p>17. Must be able to show during an experiment on Electrical Conductivity of Solutions that electrolytes conduct electricity when the bulb lights up while non-electrolyte solutions did not conduct electricity when the bulb wont light up</p> <p>18. With Operations Manual and Assembly Guide in English</p> <p>19. With sample activity guide/sheets/Teacher's Manual in English</p> <p>20. For numbers #18 to 19; the technical specifications a-e must be followed:</p> <p>a) For Contents List of materials, In Table form</p> <p>b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) in 3.0 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:</p> <p>i) Paper Size : A4 size , 80 gsm</p> <p>ii) Font : Times New Roman</p> <p>iii) Font size : 12</p> <p>iv) Margins on all sides with 2 point width border line</p> <p>v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p> <p>21. Comes with a brand marked permanently onto the box</p> <p>22. Must be brand new</p>		
6	Filter Paper, crepe, 580mm x 580 mm sheet, Grade 0905	<p>Functional Specifications: Used to filter/separate mixtures solids from liquids</p> <p>Performance Specifications: Must be able to filter solids from liquids to demonstrate filtration, as one of the techniques in separating mixtures (solids from liquids)</p> <p>Design Specifications:</p> <p>1. Type: Technical use</p> <p>2. Shape of filter paper : Square</p> <p>3. Material: Cellulose with the following dimensions:</p> <p>a) Length: 580-580.5 mm</p> <p>b) Width : 580-580.5 mm</p> <p>4. Color: White to cream</p> <p>5. Surface: Creped, very coarse textured surface</p> <p>6. Grade 0905</p> <p>7. Initial Filtration Speed: 5 sec/10 mL</p> <p>8. Flow rate : High</p> <p>9. Packed in a brown filter paper tube</p> <p>10. Must be free from dirt and all other surface imperfections including all other defects not stated herein</p> <p>11. Comes with a brand marked permanently printed in the filter paper tube</p> <p>12. Must be brand new</p>		
7	Gloves, Hand, super nitrile	<p>Functional Specifications: Used to protect hands against mechanical risks, microorganisms, chemical burns and splashes</p> <p>Performance Specifications: Must be able to protect hands against mechanical risks, microorganisms, chemical burns and splashes</p> <p>Design Specifications:</p> <p>1. Features a slightly curved fingers and forward-facing thumb correspond to the natural position of the hand (hand-shaped)</p> <p>2. Material : Nitrile, reusable, with the following dimensions:</p> <p>a) Length of gloves : 330-332 mm</p> <p>b) Thickness : 15 mil/0.38 mm -0.52 mm</p> <p>The thickness must be measured from the cuff fingers, palm and and fingers</p>		

		<p>c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the hand gloves, is super nitrile, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>d) With Certification from the manufacturer that the hand gloves is reusable and not disposable</p> <p>3. Color : Green</p> <p>4. Size : 8/Medium</p> <p>5. Interior finish (liner material) : Flocklined acid/solvent resistant)</p> <p>6. Exterior finish : Embossed texture</p> <p>7. Cuff style: Straight</p> <p>8. Latex free to suit those with latex allergies</p> <p>9. Non-slip wear resistant high elasticity , waterproof</p> <p>10. Puncture resistant</p> <p>11. With detailed imprints on each glove, on the following:</p> <ol style="list-style-type: none"> the glove size/s the name of manufacturer nitrile, flocklined individual manufacturing lot with pictograms for certification category requirements CE 0334 (EN 420, EN 388, EN 374) designed for protection against mechanical risks, chemical risks, and micro-organisms) <p>12. Individually packed in pairs in a resealable plastic bag</p> <p>13 With a statement of conformity from the manufacturer that the gloves complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems.</p> <p>14. Comes with a brand printed permanently onto the gloves</p> <p>15. Must be brand new</p>		
8	Graduated Cylinder, borosilicate, 10 mL	<p>Functional Specifications: Used to measure and to deliver the volume of liquids</p> <p>Performance Specifications: Must be able to measure and to deliver the volume of liquids up to 10 mL capacity</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Features a narrow cylindrical container with a small turned-out lip Material: Borosilicate, clear, smooth, transparent and bubble-free glass <ol style="list-style-type: none"> Thickness range : 1.3-1.4 mm Outside diameter: 13-14 mm Height: 177-178 mm Features an easy-pour spout With permanent white enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following: <ol style="list-style-type: none"> Manufacturer's name or trademark Capacity: 10 mL Graduations: 0.10 Class: A Tolerance : $\pm 0.10 - \pm 0.20$ EX/TD ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin. institution appropriate to the goods' country of origin. 20°C-27°C Single metric scale <ol style="list-style-type: none"> Graduation Range : 1 to 10 mL Graduation interval : 0.1 mL With a hexagonal non-detachable glass base With a bumper guard With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin Placed in bubble wrap, and packed individually in a compartmentalized box 		

		<p>10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>11. Comes with a brand marked permanently onto the glass</p> <p>12. Must be brand new</p>		
9	Graduated Cylinder, borosilicate, 100 mL	<p>Functional Specifications: Used to measure and to deliver the volume of liquids</p> <p>Performance Specifications:</p> <p>a) Must be able to measure and to deliver the volume of liquids up to 100 mL capacity</p> <p>b) Used as a container to determine the volume of irregularly shaped solids by water displacement</p> <p>Design Specifications:</p> <p>1. Features a narrow cylindrical container with a small turned-out lip</p> <p>2. Material : Borosilicate, clear and transparent bubble-free glass with the following dimensions:</p> <p>a) Thickness range : 1.3-1.4 mm</p> <p>b) Outside diameter: 29-31 mm</p> <p>c) Height: 254-256 mm</p> <p>3. Features an easy-pour spout</p> <p>4. With permanent white enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Capacity: 100 mL</p> <p>c) Graduations: 1 mL</p> <p>d) Class A</p> <p>e) Tolerance : ± 0.60 mL</p> <p>f) EX/TD</p> <p>g) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin.</p> <p>h) 20°C</p> <p>5. With single graduated metric scale</p> <p>a) Graduation range : 5 to 100 mL</p> <p>b) Graduation Interval : 1 mL</p> <p>6. With plastic bumper guard</p> <p>7. With a hexagonal non-detachable glass base</p> <p>8. With Statement of Accuracy (Certificate of Traceability) or Certification of Accuracy atest issued by the concerned institution which must conform to the authoritative standards lappropriate to the goods's country of origin</p> <p>9. Placed in bubble wrap, and packed individually in a compartmentalized box</p> <p>10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>11. Comes with a brand marked permanently onto the item</p> <p>12. Must be brand new</p>		
10	Graduated pipette with rubber pipettor, borosilicate, 10 mL	<p>Functional Specifications: Used to measure the amount of liquid being dispensed/delivered/transferred to another container accurate up to 10 mL capacity</p> <p>Performance Specifications: Must be able to measure the amount of liquid being dispensed/ delivered/transferred to another container accurate up to 10 mL capacity</p> <p>Design Specifications:</p> <p>1. Features a serological, transfer type straight tube with one constricted end"</p> <p>2. Material : Borosilicate, reusable, clear, transparent bubble-free glass</p> <p>a) With Certification from the manufacturer that the graduated pipette is reusable and not disposable"</p> <p>3. With permanent colored enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:</p> <p>a) Manufacturer's name or trademark</p> <p>b) Capacity : 10 mL</p>		

		<p>c) Color band code for 10 mL cap :Orange d) Graduation interval: 0.1 mL e) Class A f) Marked "TD" /Ex g) Tolerance : ± 0.06 h) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin. i) 20°C 4. Graduated to tip, zero at top 5. Color code for 10 mL cap :Orange 6. Top end is constricted 7. Capacity: 10 mL 8. Graduation interval: 0.1 mL 9. Class A permanently marked on the glass Tolerance ± 0.06 mL 10. Graduations , approximate volumes, capacity, and other markings are in permanent amber stain which resists aggressive washing solutions 11. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 12. With a statement of conformity from the manufacturer that the product complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems. 13.Accessory : With Rubber pipettor a) Typ : Three (3) -way Safety Bulb-type Pipet Filler with S, E and A letters embossed on the rubber b) Material : Non-toxic natural rubber c) Color : Red/orange d) With pinch release valves that control air evacuation, liquid uptake, and liquid dispensing e) Fits standard size pipettes 14. Packaging : Wrap glassware in newspaper and secure with a piece of masking tape and place in a bubble pouch, enclosed in polystyrene and packed in a sturdy box 15. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein 16.Comes with a brand printed permanently on the glass 17. Must be brand new</p>		
11	Hydrometer for heavy liquids	<p>Functional Specifications: Used to measure relative density of heavy liquids based on the concept of buoyancy</p> <p>Performance Specifications: Must be able to measure relative density of heavy liquids based on the concept of buoyancy, like glycerine</p> <p>Design Specifications: 1. Type : Long Plain Form 2. Features a long cylindrical hollow glass tube with a bulb weighted at the pointed bottom with a steel ballast with graduations on the arrow stem for measuring. 3. Material : Clear , transparent bubble-free Glass, with the following dimensions: a) Length : 300 - 330 mm 4. Specific Gravity Range: 1.00 - 2.00 5. Subdivision : 0.01 6. Comes with a ballast a) Material of ballast : Glass b) Heavy metals (lead, mercury)- free metal ballast c) Material inside the ballast : Steel pellets and d) With a binder 7. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 8. Individually serialized 9. Individually packed in a protective hard plastic case 10. With User's Manual in English 11. With Activity Sheets/Teacher's Manual in English 12.For numbers #10-11, the technical specifications (a-e) must be followed:</p>		

		<p>a) For Contents List of materials, In Table form b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) In original print, not photocopied d) In colored pictures, drawings/illustrations e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows: i) Paper Size : A4 size , 80 gsm ii) Font : Times New Roman iii) Font size: 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled 13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein. 14. Must have a brand etched/engraved onto the glass 15. Must be brand new</p>		
12	Hydrometer for light liquids	<p>Functional Specifications: Used to measure relative density of light liquids based on the concept of buoyancy like water</p> <p>Performance Specifications: Must be able to measure the relative density of liquids lighter than water based on the concept of buoyancy</p> <p>Design Specifications: 1. Type : Long Plain Form 2. Shape : Long cylindrical hollow glass tube with a bulb weighted at the bottom with a steel ballast with graduations on the narrow stem for measuring 3. Material : Clear , transparent bubble-free Glass , with the following dimensions: a) Total Length: 300 - 330 mm b) Subdivision : 0.005 4. Specific Gravity Range : 0.70 to 1.0 5. Accuracy : ±1 subdivision 6. Comes with a ballast a) With heavy metals (lead, mercury)- free metal ballast and glass b) Material inside the ballast: Steel pellets and c) With a binder 7. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 8. Individually serialized/packed in a protective hard plastic case 9. Individually packed in a protective hard plastic case 10. With User's Manual in English 11. With Activity Sheets/Teacher's Manual in ENGLISH 12. For numbers #10-11; the technical specifications (a-e) must be strictly followed: a) For Contents List of materials, In Table form b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) In original print, not photocopied d) In colored pictures, drawings/illustrations e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows: i) Paper Size : A4 size , 80 gsm ii) Font : Times New Roman iii) Font size : 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p>		

			<p>13. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein</p> <p>14. With a brand etched/printed onto the item</p> <p>15. Must be brand new</p>		
13	Laboratory Hot Plate with magnetic stirrer	<p>Functional Specifications:</p> <p>a) Used to heat samples, glasswares and its contents, solutions, and substances uniformly with constant stirring , or</p> <p>b) boiling of water</p> <p>c) to sterilize glasswares and other materials uniformly,</p> <p>d) dissolving buffers and reagents with constant stirring</p> <p>e) preparing media,</p> <p>f) concentrating samples and</p> <p>g) to prepare chemicals used in scientific research.</p> <p>Performance Specifications: Must be able to</p> <p>a) heat samples, glasswares and its contents, solutions, and substances with constant stirring</p> <p>b) boiling of water</p> <p>c) to sterilize glasswares and other materials uniformly</p> <p>d) dissolving buffers and reagents with constant striring</p> <p>e) preparing media,</p> <p>f) concentrating samples and</p> <p>g) to prepare chemicals used in scientific research</p> <p>h) Agitates the liquid to speed up the reaction and mixes components (solid and liquid to get homogeneous mixtures</p> <p>Design Specifications:</p> <p>1. Type : Digital</p> <p>2. Top plate material : Ceramic coated aluminum plate (chemical-acid-base resistant)with the following dimensions:</p> <p>a) Length : 178-180 mm</p> <p>b) Width: 178-180 mm</p> <p>c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the top plate is ceramic coated aluminum (chemical-acid-base resistant), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>3. Color of top plate : White</p> <p>4. Color of body: Midnight blue/any color</p> <p>5. Comes with temperature probe, probe holder, support rod, and stir bar</p> <p>a) With accurate internal temperature sensor and external temperature probe</p> <p>b) With plug/holder/ clamp/clip for temperature probe</p> <p>c) With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.</p> <p>d) With Stand rod with the following dimensions:</p> <p>i) Material: Stainless steel</p> <p>ii) Diameter (Φ):12-14 mm</p> <p>iii) Length: Φ450-452 mm</p> <p>iv) With PTFE Cross Spinplus magnetic stirrer bar Dimensions: 1 x 9/16 inches (25.4 x 14.3 mm) Color: White</p> <p>6. Maximum Operating Temp.: 380 °C</p> <p>7. Temperature accuracy : ± 0.3 °C at set temperature</p> <p>8. Stirring capacity : 5-20 Liters</p> <p>9. Speed : 80-1500 rpm</p> <p>10. Control resolution : 5 rpm</p> <p>11. Temperature range and accuracy : Max 380 °C</p> <p>12. Heating power consumption : 600 W</p> <p>13. With digital LCD with backlight display</p> <p>14. With digital feedback controller with joggle shuttle switch(Turn + Push)</p> <p>15. With over temperature protection</p> <p>16. With power cord, AC Adapter Quick and easy adjustment knob</p> <p>17. Control: Quick and easy adjustment knob</p> <p>18. With safety LEDs to indicate when heating function has been activated</p>			

			<p>19. Power: 220-240 V AC, 50/60 Hz, 800 W</p> <p>20. With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia.</p> <p>21. With quick adjustment knob and LED indicator</p> <p>22. Includes English User's Manual which consists of the Operating Manual</p> <p>23. With Activity Sheets/Teacher's Manual in English</p> <p>24. For numbers #22-23; the technical specifications (a-e) must be strictly followed:</p> <ul style="list-style-type: none"> a) For Contents/ List of materials, In Table form b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format <ul style="list-style-type: none"> i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) In original print, not photocopied d) In colored pictures, drawings/illustrations e) in 0.3 minimum thickness plastic laminated Assembly Guides that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows: <ul style="list-style-type: none"> i) Paper Size: A4 size , 80 gsm ii) Font : Times New Roman iii) Font size: 12 iv) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled <p>25. Must be free from breakage, cracks , chipped rims, sharp edges, all urface irregularities and all other defects not stated herein</p> <p>26. Must be packed in polystyrene and enclosed in a sturdy box</p> <p>27. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:</p> <ul style="list-style-type: none"> I. Training Video Contents: <ul style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: <ul style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). <p>28. Comes with a brand marked permanently on the box</p> <p>29. Must be brand new</p>		
14	Safety Goggles, polycarbonate		<p>Functional Specifications: Used to protect eyes and face against chemical burns and splashes</p> <p>Performance Specifications: Must be able to protect eyes and face against chemical burns and splashes</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1 Features an angled vented portion that does not allow direct straight line from the exterior to the interior of the eyewear which encloses wide area surrounding the eyes 2. Material of lens : Polycarbonate lens <ul style="list-style-type: none"> a) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the 		

			<p>material of the lens of the safety goggles, is polycarbonate, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>b) With Certification from the manufacturer that the pair of hand gloves is reusable and not disposable</p> <p>3. Color of the lens: Clear</p> <p>4. Lens type : Anti-splash, anti-fog treated/anti-scratch coating</p> <p>5. With indirect ventilation channels (preventing penetration of splashes) one through each side of the frame to keep out large particles, dust, and liquids and splash hazards, improves air circulation and reduces fogging in hot/humid conditions</p> <p>6. With wrap around elasticized adjustable headband integrated with goggle frame to prevent slippage and holds the goggle more securely</p> <p>7. With pivoting headband clips to adjust strap around hard hats or hearing protection</p> <p>8. Peel-off goggle covers available to extend the life of the lens</p> <p>9. Can be worn over most prescription eyewear (OTG compatible)</p> <p>10. With firm comfortable seal around forehead, cheeks, nose and temples protects against chemicals, dust and grindings</p> <p>11. Shall bear mark ANZI Z87.1-2010 Standard for Chemical Splash and Dust Protection, Z87+D3 to indicate an impact protector type (ANSI Z87.1, CE EN 166 or CSA Z94.3 certification compliance) on the frame and the lens</p> <p>12. The manufacturer or supplier certification mark must be present on all approved safety lenses, frames (front and temple), removable side shields, and other parts of the glasses, or goggles.</p> <p>13. Individually packed in a transparent plastic bag</p> <p>14. Labeling of the primary packaging displays, product name, product reference, manufacturer name, size, type, performance testing information for particular storage conditions (temperature, pressure, light, humidity, as appropriate or harmonized symbol as applicable.</p> <p>15. With issuance of certification statement from the manufacturer as to the:</p> <p>a) Non-toxicity of the materials used</p> <p>b) Material of the lens : polycarbonate</p> <p>c) It is fog coated/scratch and impact resistant</p> <p>16. Individually packed in a sturdy box/plastic bag</p> <p>17. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein</p> <p>18. Comes with a brand marked permanently on the box</p> <p>19. Must be brand new</p>		
15	Thermometer, Laboratory type, Alcohol, -20°C to 110°C		<p>Functional Specifications: Used to measure the temperature</p> <p>Performance Specifications: Must measure the temperature , -20° to 110°C</p> <p>Design Specifications:</p> <p>1. Type : Alcohol filled, partial immersion thermometer</p> <p>2. Features a small sealed tube made of glass that has a small hollow bulb filled partly with ethanol and partly with nitrogen and ethanol vapors on one end and a thin capillary opening running through the length of its center</p> <p>3. Material : Glass</p> <p>4. Color : White/yellow</p> <p>5. Non-toxic red-filled thermometer</p> <p>6. Partial immersion type with immersion line indicator and ring top</p> <p>7. With precision red alcohol-filled, reinforced bulbs, and with expansion chamber</p> <p>8. With white back with non-roll sleeve</p> <p>9. With clear and permanent markings; scale never washes out</p> <p>10. Provided with non-roll plastic case</p> <p>11. With continuous alcohol column with no separations</p> <p>12. All graduation lines, figures, and letters should be clear-cut, distinct, and filled with a permanent pigment of suitable color with the following dimensions:</p> <p>a) Length : 200 mm (min)</p> <p>b). Accuracy: ± 1° C</p> <p>c) Range : -20°C to 110°C</p>		

			<p>d) Division: 1°C e) Diameter: 5.8 to 6.2 mm f) Immersion line: 76 mm"</p> <p>13. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin 14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein. 15. Comes with a brand printed permanently onto the glass 16. Must be brand new</p>		
SCIENCE DEVICES, INSTRUMENTS, AND MEASURING TOOLS - EARTH & SPACE and LIVING THINGS					
7	1	Anemometer with Wind Vane, Cup type	<p>Functional Specifications: Used to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading</p> <p>Performance Specifications: Should be able to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading</p> <p>Design Specifications: 1. Anemometer and wind vane combined in 1 unit 2. Dimension of unit : 340-350 mm x 75-80 mm x 75-80 mm (H x W x D) 3. Powered by AA dry cells 4. Direct digital reading of wind speed, can display wind speed in m/s and km/hr, can measure average wind speed and instantaneous wind speed by means of selector switch 5. Wind vane should be free moving to indicate wind direction, wind vane should have arrow head on one end and arrow tail on the other end 6. Made of corrosion resistant material 7. All labels, inscriptions, and instructions should be in English 8. The item should be free from toxic materials 9. The item should be branded and permanently marked on the item</p>		
	2	Anemometer, Simple	<p>Functional Specifications: Used to determine wind speed by calculating the number of rotations the rotor makes per unit time</p> <p>Performance Specifications: Should be able to determine wind speed by calculating the number of rotations the rotor makes per unit time</p> <p>Design Specifications: 1. Sensitive/low friction model for demonstrating the principle of wind velocity. Can rotate with human blow 2. Made of corrosion resistant material 3. Consist of 4 cups (4.5-5 cm diameter) mounted on a hub and on an axle securely affixed to a tough and stable base. 3-cups are colored black with one red cup to facilitate counting of rotations. 4. Dimension: 210-220 mm x 150-160 mm (H X W) 5. With No Removable Parts 6. All labels and inscriptions should be in English, and permanently marked on the item 7. The item should be free from toxic materials 8. The item should be branded and permanently marked on the item</p>		
	3	Aneroid Barometer Set (Demonstration Type)	<p>Functional Specifications: Used to demonstrate how an aneroid barometer works</p> <p>Performance Specifications: Should be able to to demonstrate how an aneroid barometer works</p> <p>Design Specifications: 1. The unit is supplied with rubber compression bulb with tube, changes in pressure can be demonstrated and obtained by compressing the rubber bulb 2. Dual graduation: mm Hg and mbar(hPa). 3. Range: 960 to 1060 mbar with mmHg equivalent 4. Dial Diameter of 98 to 100 mm 5. With English User's manual that includes the operation and reset procedure. 6. Must be branded and permanently marked on the item</p>		

4	Aneroid Barometer, wall-mount	<p>Functional Specifications: Used to measure the prevailing atmospheric pressure in a locality in real time</p> <p>Performance Specifications: Should be able to measure the prevailing atmospheric pressure in real time</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Reading standard Scale Range: 960 mbar to 1060 mbar 2. Dual graduation: mmHg and mbar(hPa) 3. Dial Diameter: 98 mm-130 mm 4. Materials: plated bezel, scratch-free cover glass, and plastic base 5. Shock resistant, heat resistant 6. With English User's manual that includes the operation and reset procedure. 7. Must be branded and permanently marked on the item 		
5	Compass, Magnetic	<p>Functional Specifications: Used to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field</p> <p>Performance Specifications: Should be able to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Outside Diameter: 48-50 mm 2. Needle mounted in an Aluminum case with clear, scratch-free plastic or glass face 3. Graduated dial marked in cardinal points (North, South, West, East, Northwest, Northeast, Southwest, and Southeast). 4. Must be branded and permanently marked on the item 		
6	Dissecting Set with pan	<p>Functional Specifications: Used to perform a wide variety of dissections.</p> <p>Performance Specifications: Must be able to aid in classifying different animal tissues during dissection.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. 10 pc dissecting set that includes the following stainless steel instruments: <ul style="list-style-type: none"> • 1 piece surgical scissors, minimum length of 110mm • 1 piece fine point/iris scissors, minimum length of 110mm • 1 piece fine point curved forcep, minimum length of 110mm • 1 piece fine point straight tip forcep, minimum length of 110mm • 1-piece tissue forcep/mosquito forcep, curved tip • 1-piece scalpel minimum 4 cm blade length • 1-piece scalpel handle • 1-piece teasing needle angular with chuck • 1-piece teasing needle straight with chuck • 1-piece mall probe and seeker 2. In a rectangular vinyl zippered case; 3. With 1-piece stainless steel dissecting pan (minimum): 254 mm x 178 mm x 38 mm 4. "Stainless steel" shall be embossed or engraved on the items whenever applicable. 5. Must be branded and brand new. The brand shall be printed on vinyl zippered case. 		
7	First Aid Kit	<p>Functional Specifications: Used to provide immediate medical help in an emergency.</p> <p>Performance Specifications: Must be able to treat minor illnesses and injuries in an emergency.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. First Aid Quick Reference Guide in English, 1pc 2. Sterile Medical Gauge Swab (minimum) 10cm x 10 cm x 12 ply, 100 pcs./pack, 1 pack or 2 packs (50 pcs/pack) 3. Adhesive strips/Band -Aid, 50 pcs/pack, 2 packs 4. Gloves,disposable, 2 pairs (1-medium and 1-large) 5. Hypo allergenic adhesive tape (minimum) 5cm x 5m, 2 rolls 6. Triangular bandage/arm sling (minimum) 90cm x 90cm x 120cm, 2pcs 		

		<p>7. Safety pins, (minimum) 30 mm - (12 pcs); (minimum) 44mm- (12 pcs)</p> <p>8. Stainless steel bandage scissors, minimum length 14 cm, 2 pcs (no plastic part)</p> <p>9. Betadine, 60ml, 2 bottles (Expiration date shall be at least two years).</p> <p>10. Hydrogen Peroxide, 3% solution as indicated on product label, 60 ml, 1 bot. (Expiration date shall be at least two years.)</p> <p>11. Hand towels or face towels, white color, 6 pcs</p> <p>12. Gauze bandage, (minimum): 5cm x 4m, 2 rolls</p> <p>13. Antiseptic handwash/germicidal soap, 60 gms, 2pcs</p> <p>14. Tourniquet, 2 pcs</p> <p>15. Spirit of ammonia, 30ml, 1 bot. (Expiration date shall be at least two years)</p> <p>16. Burn cream ointment 15g - 20g, 1 tube (Expiration date shall be at least two years.)</p> <p>17. Medical tweezers minimum 8cm, plastic , 2pcs</p> <p>18. Plastic bags, resealable, minimum 100mmx180mm-24pcs; minimum 150mmx230mm-24 pcs</p> <p>19. Cotton balls, minimum 50 balls in a sealed package, 2 packs</p> <p>20. Hot and Cold pack, reuseable, 1 pack</p> <p>21. With water resistant medical emergency rescue bag with handle that can accommodate all of the above listed items.</p> <p>22. All items must be branded and brand new. The brand shall be printed on the packing of each item or on the item whenever applicable.</p>		
8	Gloves, Surgical	<p>Functional Specifications: Used to protect hands from dirt and contamination.</p> <p>Performance Specifications: Must be able to protect hands against dirt, laceration and contamination.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Sterile, latex surgical gloves 2. Smooth, powder-free and beaded cuff 3. Color: White or beige 4. Size range: Medium - Large 5. Individually sealed pack pair of gloves with brand and type of material printed on it. 6. Must be branded and brand new. 		
9	Hand Lens, 10x magnification	<p>Functional Specifications: Used for enlarging the appearance of objects 10 times its actual size</p> <p>Performance Specifications: Should be able to enlarge the appearance of objects 10 times its actual size</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Magnification: x 10 2. Diameter (viewable area) 18-20 mm 3. Body: Stainless steel; Handle: plastic 		
10	Hand Lens, 5x magnification	<p>Functional Specifications: Used to produce a magnified image of an object.</p> <p>Performance Specifications: Must be able to magnify the image of an object.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Five times (5x) magnification power 2. Glass lens; diameter range: 45mm - 50 mm 3. Mounted in a circular chrome-plated metal frame with a cylindrical handle 4. No sharp edges and other defects 5. Safely packed in a box 6. Must be branded and brand new. The brand shall be printed on the box. 		
11	Hexagonal Weigh Dishes Set, 50mL, 500 pcs/pack	<p>Functional Specifications: Used for containment of relatively small amount of solid or liquid specimens for weighing</p> <p>Performance Specifications: Should be able to contain relatively small amount of solid or liquid specimens for weighing</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Made of hexagonal shapes plastic; Capacity 50 mL 		

		<p>2. Easily bent into pouring spouts to facilitate in sample transfers and reduce the risk of spills.</p> <p>3. Ideal for handling solids or liquids during weighing procedures.</p> <p>4. Flat bottoms and sloping sides allow these disposable dishes to be easily stacked and conveniently stored.</p> <p>5. Must be branded and permanently marked on the item</p> <p>6. Quantity: 500 pcs</p>		
12	Lens Paper, 50's/pack	<p>Functional Specifications: Used to clean the microscope lenses.</p> <p>Performance Specifications: Must be able to clean the microscope lenses.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Measures (minimum) 100 mm x 150 mm Material: Fine, soft, lint-free paper Quantity: 50 sheets/booklet Must be packed in a resealable plastic Must be branded and brand new. The brand shall be printed on the cover of the booklet. 		
13	Microscope, Compound with 4 Objectives	<p>Functional Specifications: Used to view specimen not visible to the naked eye.</p> <p>Performance Specifications: Must be able to focus specimen not visible to the naked eye using the four objectives.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Eyepiece: Glass lens, locked-in wide field, 10X with pointer, and with own separate plastic storage case includes an extra 15X eyepiece Nosepiece: Quadruple with accurate centering and click stops; easy to turn Objectives: With metal casing, glass lens, DIN achromatic objectives are parfocal, par centered, color coded, 4x,10x; retractable 40x, and 100x (oil immersion) with own separate plastic storage case Stage: Built in flat, firmly fixed graduated mechanical stage clips and with knobs; minimum 110 mm x 110 mm ; glass slides shall not be displaced when mounted Condenser: N.A. 1.25 with iris diaphragm Focus: Dual coarse controls with slip clutch and adjustable tension ring; dual lever type fine focus controls; adjustable safety stop. Gives sharp, clear, well-lighted images Mirror range: 49mm - 51 mm, 2-sided, plane-concave No sharp metal parts and other defects With wooden storage case; and immersion oil provided With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions. Manual details: <ol style="list-style-type: none"> Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm) Size: (minimum) 165 mm x 215 mm Fold (minimum) 330 mm x 215 mm Spread Binding: Saddle Staple Font type: Arial and Font size (minimum): 10 Pictures shall be in full color Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> Training Video Contents: <ol style="list-style-type: none"> Name of the equipment Parts of the equipment Instruction on how to use the equipment Sample Experiment/Activity using the equipment Maintenance of the equipment Troubleshooting Storage and safekeeping (include cleaning) of the equipment Training Video details: <ol style="list-style-type: none"> Shall be in MP4 format. Shall be saved in a USB 3.0 Flash Drive. Shall have a High-Definition resolution of at least 1080p. 		

		<p>d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.</p> <p>e. Shall comply an aspect ratio of 4:3.</p> <p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p> <p>13. Warranty on parts and labor: 2 years</p> <p>14. Must be branded and brand new. The brand shall be <u>permanently mark on the item.</u></p>		
14	Microscope, Digital	<p>Functional Specifications: Used to focus specimen with the image viewed through the LCD screen.</p> <p>Performance Specifications: Must be able to show the structure of subcellular organelles.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Nosepiece: Triple with 4x, 10x, 40x achromatic objectives and click stop 2. Magnification: 40x, 100x, and 400x (1600x with digital zoom) 3. Has full color (minimum) 3.5" TFT LCD screen with onboard software 4. Digital Camera: 5 MP CMOS sensor (minimum) as indicated in the manufacturer's manual 5. With built-in top and bottom LED illumination sources 6. 220V; 50/60 Hz power source 7. Battery options 4AA 8. Stage: (minimum) 88 mm x 88 mm; fully mechanical with metal clips; 9. Six position filter wheel 10. With 180° rotating LCD screen 11. Combination of smooth-finished metal and plastic parts 12. Supports up to 32G Memory size 13. AC Plug (power) SD Card (32G max) Port(s) In 14. With TV/AV output for display on large monitors for classroom or at the laboratory 15. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: <ol style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). 16. Warranty on parts and labor: 2 years 17. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions. 18. Manual details: <ol style="list-style-type: none"> a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) 		

		<p>Cover: Paper board, 280 gsm (minimum 0.30 mm)</p> <p>b. Size: (minimum) 165 mm x 215 mm Fold (minimum) 330 mm x 215 mm Spread</p> <p>c. Binding: Saddle Staple</p> <p>d. Font type: Arial and Font size (minimum): 10</p> <p>e. Pictures shall be in full color</p> <p>19. Accessories included:</p> <ol style="list-style-type: none"> Minimum 1 GB micro SD card USB 2.0 Cable (data transfer) Dust Cover Rugged canvass carrying case with shoulder strap Five (5) prepared slides AC Adapter with 4 International Plugs AV out cable for viewing on a TV or projector <p>20. Must be branded and brand new. The brand shall be permanently mark on the item.</p>		
15	Pipette, Beral, 1 mL	<p>Functional Specifications: Used to transfer/dispense liquid samples.</p> <p>Performance Specifications: Must be able to transfer/dispense liquid sample up to a volume of 1 mL.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> One-piece pipette, made from flexible soft non-toxic plastic that has a protuberance on top that serves as liquid retention chamber (Certificate of non-toxicity is required) Capacity: 1 mL in 0.25 mL grad interval No rubber head Total length (minimum): 140 mm With molded (embossed) graduations Must be brand new 		
16	Prepared Slide Set, Microscope, 25 pieces	<p>Functional Specifications: Used to contain the readily mounted and ready to view object/specimen for examination under a microscope.</p> <p>Performance Specifications: Must be able to show the specimen when viewed under a microscope.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Quantity: Set of 25 pieces glass slides Dimensions (Width x Length) minimum: 25 mm x 75 mm Thickness (minimum) : 1.0 mm Individually sealed and protected by a cover slip/glass cover; Clear, distinct and colorful slides of the following: insects (4); plants (7); animals/microbes (7); Human tissues (7) Either of the following insects: wing of housefly, mosquito larvae, <i>Drosophila melanogaster</i>, housefly head, aphids. Either of the following plants: <i>Volvox</i>, stem of monocotyledon c.s., stem of dicotyledon c.s., monocot leaf epidermis, dicot leaf epidermis, germinated pollen, <i>Hydrilla</i> leaf w.m. Either of the following animals/microbes: <i>Hydra</i> budding, <i>Euglena</i>, diatoms, <i>Daphnia</i> w.m., <i>Amoeba proteus</i>, <i>Paramecium</i> w.m., Planaria w.m., Planaria c.s., <i>Ascaris</i> mitosis, <i>Vorticella</i>, lancelet w.m., <i>Escherichia coli</i>, <i>Staphylococcus aureus</i>, <i>Lactobacillus</i> spp. Either of the following human tissues: skeletal muscle c.s., small intestine c.s., human white blood cell, cardiac muscle; motor neurons cell w.m., spinal cord c.s., lung section, liver section, nerve cell w.m., meiosis of human sex cells, stomach villi Writing the scientific name with correct spelling shall be properly observed. Individually and permanently labeled for specimen identification. Slides are packed in a fitted plastic box that contains interior padding to prevent breakage. No finger-smudged and no chipped edges slide Includes instructions on how to clean and properly store the slide in a coated paper-glossy finish minimum 105 mm x 140 mm, Font style: Arial, Font size(minimum): 10, written in American English. Must be branded and brand new. The brand shall be permanently marked on the storage box. 		

17	Prepared Slide Set, Mitosis and Meiosis	<p>Functional Specifications: Used to guide students through the events of cell division.</p> <p>Performance Specifications: Must be able to compare mitosis and meiosis, and their role in the cell-division cycle.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. A set of 6 rectangular microscope glass slides with polished edges; with clear and distinct sample specimen. <ol style="list-style-type: none"> a. <i>Ascaris megalocephala</i> embryology. Sec. of uteri showing maturation stages (meiosis). Polar bodies can be seen. b. Giant chromosomes, smear from salivary gland of <i>Chironomus</i>, carefully fixed and stained c. <i>Lilium</i>, anther t.s., microspore mother cells showing telophase of first and prophase of second (homeotypic) division d. Meiotic and mitotic stages in sec. of <i>Salamandra testis</i>. Many meiotic and mitotic stages can be observed. e. Mitosis, l.s. from <i>Allium</i> root tips showing all stages of plant mitosis carefully stained with iron-hematoxyline f. Mitotic stages in sec. through red bone marrow of mammal 2. Dimensions (Width x Length) minimum: 25 mm x 75 mm 3. Thickness (minimum): 1.0 mm 4. Individually sealed and protected by a cover slip/glass cover; 5. Each slide is permanently labeled for specimen identification; 6. Writing the scientific name with correct spelling shall be properly observed; 7. Slides are kept in a fitted plastic storage box that contains interior padding to avoid breakage 8. No finger-smudged and no chipped edges slide 9. Includes instructions on how to clean and properly store the slide in a coated paper-glossy finish (minimum 105 mm x 140 mm), Font style: Arial, Font size(minimum): 10, written in American English. 10. Must be branded and brand new. The brand shall be permanently marked on the storage box. 		
18	Reaction Plates with 6 Wells	<p>Functional Specifications: Used to contain small amount of samples of specimens under study</p> <p>Performance Specifications: Should be able to contain small amount of samples of specimens under study</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Made of clear, non-toxic plastic material that is free from sharp edges. 2. Plate Shape: Rectangular 3. Plate Length: 110-120mm 4. Plate Width: 85-100mm 5. Six Well per Plate 6. Well Shape: Circular/ Round 7. Well diameter: 30-35 mm 8. Well deep: 6-8mm 9. Well capacity: 1.6 mL -2.0mL 10. Used for soil and water testing 11. Must be branded and permanently marked on the item 		
19	Sedimentator Tube	<p>Functional Specifications: Used to demonstrate how soil sediments settle in water</p> <p>Performance Specifications: Should be able to demonstrate how soil sediments settle in water</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. 10 1/2 inches - 12 inches height with a diameter of 1 - 1 1/2 inches 2. Sealed and leak free 3. The body made of clear, transparent plastic tube. 4. With different sediment and crystal clear water. 5. Functions: <ol style="list-style-type: none"> a. Use for observing movement, deposition, and layering of sediments and organic materials. b. Observations apply to sedimentary rock formation and fossil formation 6. With English User's Manual that includes <ol style="list-style-type: none"> a. operation guide. b. Guide on how to use 		

			c. Student Activity Sheets 7. Brand must be permanently marked on the item.		
20	Sling Psychrometer	<p>Functional Specifications: Used to measure relative humidity</p> <p>Performance Specifications: Should be able to measure relative humidity</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Composed of two red spirit thermometer in Celsius with temperature ranges: -5°C to +50 °C 2. Equipment Size: (7 -8 inches long x 1-2inches diameter) 3. Built -in Psychrometer Water Reservoir 4. Includes a wick for Wet Bulb 5. Wick Replacement Kit- containing 4 wicks 6. Build in Slide rule construction for quick conversion temperature reading to relative humidity 7. Includes additional two thermometers for replacement with individual plastic or hardboard case 8. Easy to rotate to determine the relative humidity. 9. With English User's Manual that includes: <ol style="list-style-type: none"> a. Operation Guide b. Maintenance 10. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: <ol style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). 11. Must be branded and permanently marked on the item 			
21	Soil pH, Moisture, Sunlight Meter	<p>Functional Specifications: Used to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time</p> <p>Performance Specifications: Should be able to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Compose of two electrodes, 7 inches -10 inches long 2. pH/ Moisture/ Sunlight Switch 3. pH Range: 3.5 - 8 pH (3.5-6.5 Acidic, 7-8 Alkaline) 4. Moisture Range: 1-10 (1-3 Dry; 4-6 Normal; and 7-10 Wet) 5. Light Range: 0 - 2000 lux (0-200 Low, 200-500 Low+, 500-1000 Normal, and 1000-2000 High) 6. With English User's Manual that includes: <ol style="list-style-type: none"> a. Operation Guide b. Procedure on the proper use, handling and storage. c. Student Activity in using the item. 7. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment 			

		<ul style="list-style-type: none"> b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment <p>II. Training Video details:</p> <ul style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). <p>8. Brand must be permanently marked on the item.</p>		
22	Soil/Test Sieve*	<p>Functional Specifications: Used to determine the prevailing air temperature inside a room in real time</p> <p>Performance Specifications: Should be able to determine the prevailing air temperature inside a room in real time</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. Alcohol filled red color, glass tube type 2. Overall length: 760 mm (minimum) 3. Tube containing liquid column: 23 inches (minimum) 4. Temperature range (dual): <ul style="list-style-type: none"> 4.1 Centigrade: -40°C to +50°C 4.2 Fahrenheit: -40°F to +120°F 5. Brand must be permanently marked on the item. 		
23	Thermometer, Classroom, wall-mount	<p>Functional Specifications: Used to determine the prevailing air temperature inside a room in real time</p> <p>Performance Specifications: Should be able to determine the prevailing air temperature inside a room in real time</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. Alcohol filled red color, glass tube type 2. Overall length: 760 mm (minimum) 3. Tube containing liquid column: 23 inches (minimum) 4. Temperature range (dual): <ul style="list-style-type: none"> 4.1 Centigrade: -40°C to +50°C 4.2 Fahrenheit: -40°F to +120°F 5. Brand must be permanently marked on the item. 		
24	Tong, Beaker	<p>Functional Specifications: Used to hold heated beakers.</p> <p>Performance Specifications: Must be able to secure hot beakers.</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. Scissor-like tool with plastic-coated jaws 2. Made of minimum 6.0 mm smooth finish chrome-plated steel 3. With flat riveted joint 4. Total length (minimum) : 254 mm 5. Holds beakers from 50mL to 1000 mL 6. Safely packed in a box 7. Must be branded and brand new. The brand shall be printed on the box. 		
25	Wash Bottle, plastic, 250 mL	<p>Functional Specifications: Used to store and dispense water for diluting solutions, washing precipitates and rinsing glass wares.</p> <p>Performance Specifications: Must be able to store and dispenses water in diluting, washing precipitates and rinsing activities.</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. Translucent and non-toxic plastic material (Certificate of non-toxicity is required) 2. Cylindrical body shape 3. Easy squeeze dispensing; no leaks 		

			<p>4. Capacity: 250 mL.</p> <p>5. Screw type closure with its angled stem and draw tube molded in one piece</p> <p>6. Must be brand new.</p>		
MATHEMATICAL MANIPULATIVES					
8	1	Algebra Tile Set, plastic	<p>Functional Specifications: Used to demonstrate algebraic concept up to second degree polynomial.</p> <p>Performance Specifications: Must be able to represent mathematical expressions and equations to introduce and foster algebraic concepts, including adding and subtracting polynomials, factoring trinomials, and the Zero Principle.</p> <p>Design Specifications:</p> <p>1. Algebra Tiles should come in a set of 30 that includes the following:</p> <ul style="list-style-type: none"> a. 6 pcs of Square Tile (Squared Variable Tile) about 89mm x 89mm x 1mm (minimum) in size and color blue b. 16 pcs of Long Tile (Variable Tile) about 89mm x 21mm x 1mm (minimum) in size and color green c. 24 pcs of Ones Tile (Constant Tile) about 21mm x 21mm x 1mm (minimum) in size and color yellow <p>Note: Each kind of tile should have RED back color to denote the Negative side of the tiles.</p> <p>2. Made of plastic and has no sharp edges.</p> <p>3. Must be stored in a plastic storage box with a capacity to store 1,300 pcs of Algebra Tiles.</p> <p>4. Shall be free from toxic materials.</p> <p>5. Brand must be permanently marked on the plastic storage.</p>		
	2	Base Ten Blocks	<p>Functional Specifications: Used to demonstrate abstract mathematical concept of the number system such as one-to-one correspondence, place value, and basic addition and subtraction</p> <p>Performance Specifications: Must be able to demonstrate a number's value and place value and vice versa.</p> <p>Design Specifications:</p> <p>1. Made of plastic, smooth surface and edges, and free from toxic materials</p> <p>2. The set includes 100 units (1 cm x 1 cm x 1 cm [minimum]), 10 rods (1 cm x 1 cm x 10 cm [minimum]), 10 flats (1 cm x 10 cm x 10 cm [minimum]), and 1 cube (10 cm x 10 cm x 10 cm [minimum]).</p> <p>Note: Each block should have distinct color from each other (e.g.: Unit - Red, Rod - Yellow, Flat - Green, Cube - Blue).</p> <p>3. Comes with a plastic container with cover to accommodate all the items.</p> <p>4. Shall be free from toxic materials.</p> <p>5. Brand must be permanently marked on the plastic container.</p>		
	3	Beads	<p>Functional Specifications: Used to reinforce counting, sorting, patterning and sequencing.</p> <p>Performance Specifications: Must be able to scaffold learners in counting and grouping of numbers, colors, patterns, etc.</p> <p>Design Specifications:</p> <p>1) Bead Material: Plastic, spherical, smooth surface</p> <p>2) With a hole that passes through the center</p> <p>3) Bead diameter: 15 mm to 18 mm</p> <p>4) Assorted color, at least 5 colors consisting of 60 pieces each color.</p> <p>5) Comes with a plastic transparent storage container with cover</p> <p>6) The items shall be free from toxic materials.</p> <p>7) Comes with nylon string of 5-6 meters long that fit loosely to beads hole</p>		
	4	Circle Area Demonstrator	<p>Functional Specifications: Used to demonstrate area of a circle.</p> <p>Performance Specifications: Performance: Must be able to show/demonstrate derivation of circle's area and how dimensions of a parallelogram is related to it.</p> <p>Design Specifications:</p> <p>1. Material: Plastic</p>		

		<p>2. Circle Diameter: 196 mm (minimum) - Each half comes in different colors</p> <p>3. Thickness: 5 mm (minimum)</p> <p>4. Dissectible into at least 12 sectors</p> <p>5. Comes with base for mounting the circle and the sectors.</p> <p>6. Shall be free from toxic materials.</p>		
5	Compass, Drawing, student type	<p>Functional Specifications: Used to draw/construct arcs, semi-circles and circles.</p> <p>Performance Specifications: Must be able to draw/construct arcs, semi-circles and circles.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Compass, two legs, stainless steel; 2. Length: 120mm - 150mm; 3. With pencil adaptor attached at or integrated on one end of one of the legs. The said adaptor must be able to adapt, also, to any kind of pencil available in the local market; 4. Stainless Steel: Well-polished and smooth; 5. Comes with transparent plastic case or box; and 6. Brand must be permanently printed on the case. 		
6	Cuisenaire Rods, set of 5	<p>Functional Specifications: Used to provide an interactive, hands-on way to explore mathematics and learn mathematical concepts, such as the four basic arithmetical operations, working with fractions and finding divisors.</p> <p>Performance Specifications: Must be able to demonstrate four fundamental operations, part-to-whole concept, decimals and other concepts related to number sense and measurement.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Made of hard, smooth finish plastic materials. 2) One (1) set is composed of 74 cuisenaire rods of different colors. 3) Each color represents a specific rod length. 4) Rod Lengths are: 1cm -white, 2cm - red, 3cm - gray, 4cm - pink, 5cm - yellow, 6cm - green, 7cm - dark green, 8cm - brown, 9cm - blue, and 10cm - orange. 5) Comes in a plastic storage container with cover that accommodates 5 sets of cuisenaire rods. 6) The item shall be free from toxic materials. 7) Brand must be permanently printed on the case. 		
7	Elapsed Time (Clock) Set	<p>Functional Specifications: Used to demonstrate time and other related concepts.</p> <p>Performance Specifications: Must be able to represent and demonstrate time using hour hand and minute hand.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. A set includes: <ol style="list-style-type: none"> a. Two Twelve (12) hour demonstration clock, magnetic b. Segmented timeline, 24-hour timeline (AM and PM) which makes up of 4 segments c. Removable guide numbers d. Start and End arrows 2. Dial diameter measures 24-26 cm 3. The hour number must be printed in Hindu Arabic numeral and with corresponding minute(s) number in the same numeral format. 4. The item shall be free from toxic materials. 5. Brand must be permanently printed on the case. 		
8	Geoboard, 11 x 11	<p>Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons.</p> <p>Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Double sided geoboard - square pattern on one side (11 x 11), circle on the other; 2. Made of plastic material and comes in any color; 		

		<p>3. The surfaces and edges must be smooth, no warps, must sit flat when laid on the table;</p> <p>4. Board Dimensions (W x L): 229 mm x 229 mm (minimum);</p> <p>5. Edging Height (all sides): 6 mm from the board (minimum);</p> <p>6. Board and Edging Thickness: 3 mm (minimum);</p> <p>7. Array Pin Diameter: 3 mm (Minimum);</p> <p>8. Array Pin Height: 5 mm (Minimum);</p> <p>9. Comes with a transparent plastic case;</p> <p>10. Comes with Instruction Manual in English with illustrations;</p> <p>11. Comes with assorted size and color rubber bands (25 pcs); and</p> <p>12. Brand must be permanently printed on the case</p>																
9	Geoboard, 5 x 5	<p>Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons</p> <p>Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.</p> <p>Design Specifications:</p> <p>1) Enables the students to perform different kinds of shapes (like square, triangle, circle, etc.) using rubber bands.</p> <p>2) On the top surface is the Square Geoboard with 25 guiding posts arranged 5 x 5 (forming a square) at 40mm distance apart between centers.</p> <p>3) On the bottom surface is the Circle Geoboard with 13 guiding posts. Twelve (12) of these guiding posts are arranged at 30° apart on a circle of 150mm diameter while the remaining one (1) guiding post is on the center of the said circle.</p> <p>4) Made of plastic, color blue.</p> <p>5) Board Dimensions (W x L): 200mm x 200mm (minimum)</p> <p>6) Guiding post approximate Diameter: 6mm (minimum)</p> <p>7) Guiding post approximate Height: 20mm (minimum)</p> <p>8) Approximate Height of the Base (Edging Height): 25mm (minimum)</p> <p>9) Board Thickness: 3-5mm</p> <p>10) Comes with a plastic case with content description on its cover.</p> <p>11) The surfaces and edges of the Geoboard and its Case must be smooth.</p> <p>12) Comes with Instruction Manual in English.</p> <p>13) Brand must be permanently printed on the case.</p> <p>Note: There must be no warping of the board and base. The Geoboard must be flat when laid on a table.</p>																
10	Geostrips	<p>Functional Specifications: Used to make and represent different shapes.</p> <p>Performance Specifications: Must be able to show/demonstrate different kinds of angles and shapes.</p> <p>Design Specifications:</p> <p>1. The strips are made of plastic minimum of 1.8 mm thickness and minimum of 18 mm wide in assorted colors with rounded ends;</p> <p>2. Comes in various lengths ranging from 50 mm to 350 mm.</p> <p>Example:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Red:</td> <td style="width: 50%;">Blue:</td> </tr> <tr> <td>a) Shortest: 93-94mm</td> <td>a) Shortest: 124-125mm</td> </tr> <tr> <td>b) Shorter: 169-170mm</td> <td>b) Longest: 233-234mm</td> </tr> <tr> <td>c) Longest: 323-324mm</td> <td></td> </tr> </table> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Yellow:</td> <td style="width: 50%;">White:</td> </tr> <tr> <td>a) Shortest: 150-151mm</td> <td>a) Shortest: 175-176mm</td> </tr> <tr> <td>b) Longest: 283-284mm</td> <td>b) Longest: 233-234mm"</td> </tr> </table> <p>3. They are designed to be fastened together with a plastic coated brads or plastic coated round head fasteners to form plane geometric figures.</p> <p>4. One (1) set consists of 68 strips, a minimum of 100 pieces plastic coated brads and a protractor.</p> <p>5. The set comes in a transparent plastic case for proper storage.</p> <p>6. The items shall be free from toxic materials.</p> <p>7. Brand must be permanently marked on the plastic case.</p>	Red:	Blue:	a) Shortest: 93-94mm	a) Shortest: 124-125mm	b) Shorter: 169-170mm	b) Longest: 233-234mm	c) Longest: 323-324mm		Yellow:	White:	a) Shortest: 150-151mm	a) Shortest: 175-176mm	b) Longest: 283-284mm	b) Longest: 233-234mm"		
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11	Ghost Grid Whiteboard, Mobile Magnetic	<p>Functional Specifications: Used to aid classroom instructions especially in graphical representations such as linear, quadratic, polynomial, histogram, normal curve, etc.</p> <p>Performance Specifications: Must be able to move from one place to another and to clearly show illustrations that do not exceed from 1 meter vertically and 1.2m horizontally guided with lines with 20mm spacing (horizontally and vertically).</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Mobile Magnetic Ghost Grid Whiteboard; 2. Material: Painted Steel 3. Frame: Aluminum, 1" edging; 4. Surface Material: Magnetic Painted Steel; 5. Grid Pattern: 2" x 2", ghots grid; 6. Full Dimensions: 74-75"W x 23-24"D x 69-70"H; 7. Board Dimensions: 72-73"W x 40-41"H; 8. Base Dimensions: 74-75"W x 23-24"D; 9. Tray Style: Full length 10. Casters: 4 pieces, 2-inch casters, two with locking brakes; 11. Must be properly packed using shipping carton. 		
12	Linking Cubes	<p>Functional Specifications: Used to assist with the understanding of mathematical concepts</p> <p>Performance Specifications: Must be able to interlock together to build various shapes and structures</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Linking plastic cubes: <ol style="list-style-type: none"> a. Dimension: 1 cm x 1 cm x 1 cm (minimum) b. Material: Non-toxic plastic that comes in assorted colors (5 colors with at least a minimum of 100 pieces per color) c. With interlocking feature for connecting the cubes. 2) Comes with plastic transparent storage bucket with cover. 3) Fitting is push fit which can be assembled or disassembled without extra effort. 4) Shall be free from toxic materials. 5. Brand must be permanently marked on the storage. 		
13	Model, Basic 3D Geometrical Collapsible	<p>Functional Specifications: Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons.</p> <p>Performance Specifications: Must be able to demonstrate geometrical relationships between polygons (2D) and polyhedrons (3D) in terms of deriving formula on surface area and volume.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Collapsible Basic 2D-3D Geometrical Solid Models include: <ol style="list-style-type: none"> a) Cube: 10-10.5cm x 10-10.5cm x 10-10.5cm b) Cone: Height = 10-10.5cm; Base diameter = 10-10.5cm c) Cylinder: Height = 10-10.5cm; Base diameter = 10-10.5cm d) Hexagonal prism: Height = 10-10.5cm; Length of sides (Base) = 5-6cm e) Hexagonal pyramid: Height = 10-10.5cm; Length of sides (Base) = 5-6cm f) Pentagonal prism: Height = 10-10.5cm; Length of sides (Base) = 6-7cm g) Pentagonal pyramid: Height = 10-10.5cm; Length of sides (Base) = 6-7cm h) Square prism: 10-10.5cm x 5-5.5cm x 5-5.5cm i) Square pyramid: Height = 10-10.5cm; Base diameter = 10-10.5cm j) Triangular prism: Height = 10-10.5cm; Length of sides (Base) = 10-11cm;and k) Triangular pyramid: Height = 10-10.5cm; Length of sides (Base) = 10-11cm 2) Each solids is made of plastic with rounded corners and edges, and 11 corresponding matching folding nets in 6 colours made from soft plastic that fits inside the solid. 3) Size of each solids ranges from minimum of 100mm in height. 4) Comes with an activity guide. 5) Comes with a plastic transparent storage container with cover that can accomodate all the solids and the activity guide. 6) Shall be free from toxic materials. 		

		7) Brand must be permanently printed on the case.		
14	Model, Basic 3D Geometrical Solids	<p>Functional Specifications: Used to represent basic three-dimensional figures.</p> <p>Performance Specifications: Must be able to demonstrate geometrical concepts related to properties of geometrical solids.</p> <p>Design Specifications:</p> <p>1.) At least 17 types of Geometrical Solids which includes these core shapes:</p> <p>a) Cube: 10-10.5cm x 10-10.5cm x 10-10.5cm</p> <p>b) Cone: Height = 10-10.5cm; Base diameter = 10-10.5cm</p> <p>c) Cylinder: Height = 10-10.5cm; Base diameter = 10-10.5cm</p> <p>d) Hexagonal prism: Height = 10-10.5cm; Length of sides (Base) = 5-6cm</p> <p>e) Hexagonal pyramid: Height = 10-10.5cm; Length of sides (Base) = 5-6cm</p> <p>f) Pentagonal prism: Height = 10cm; Length of sides (Base) = 6-7cm</p> <p>g) Pentagonal pyramid: Height = 10-10.5cm; Length of sides (Base) = 6-7cm</p> <p>h) Rectangular prism: 10cm-10.5 x 5cm x 10cm-10.5</p> <p>i) Square pyramid: Height = 10-10.5cm; Base diameter = 10-10.5cm</p> <p>j) Triangular prism: Height = 10-10.5cm; Length of sides (Base) = 10-11cm;and</p> <p>k) Triangular pyramid: Height = 10-10.5cm; Length of sides (Base) = 10-11cm</p> <p>l) Sphere: Diameter of Great Circle = 10-10.5cm</p> <p>m) Semisphere: Diameter of Great Circle = 10-10.5cm-10.5m</p> <p>n) Square prism: 10-10.5cm x 5-5.5cm x 5-5.5cm</p> <p>o) Small cube: 5-5.5cm x 5-5.5cm x 5-5.5cm</p> <p>p) Small Triangular Prism: Height = 10-10.5cm; Length of sides (Base) = 5-6cm</p> <p>q) Small Cylinder: Height = 10cm; Base diameter = 5cm</p> <p>3) Made of hard plastic</p> <p>4) Comes in a transparent plastic container with cover to accommodate the 17 or more types of geometric solids.</p> <p>5) Surface finish is smooth on all items.</p> <p>6) Brand must be permanently printed on the case.</p>		
15	Pattern Blocks, 250 pcs/set	<p>Functional Specifications: Used to explore mathematical concepts, including congruence, similarity, symmetry, area, perimeter, patterns, functions, fractions, and graphing</p> <p>Performance Specifications: Used to demonstrate different kinds of polygons.</p> <p>Design Specifications:</p> <p>1. One (1) set of pattern blocks contains a total of 250 pieces of six geometrical shapes and six colors - 25 each of hexagons and squares; 50 each of trapezoids, triangles, parallelograms, and rhombi.</p> <p>2. Made of smooth surface plastic material.</p> <p>3. Minimum thickness: 5 mm</p> <p>4. Comes with a plastic transparent storage container with cover.</p> <p>5. The items shall be free from toxic materials.</p> <p>6. Brand must be permanently marked on the storage container.</p>		
16	Pentominoes	<p>Performance Specifications: Must be able to demonstrate concepts pertaining to perimeter and area using the 12 kinds of 5-squared geometric shape.</p> <p>Design Specifications:</p> <p>1. Geometry puzzle consists of 12 pentominoes, each are made up of 5 equal-sided squares connected edge-to-edge. Dimension of square is 2.54cm x 2.54cm (minimum).</p> <p>2. Twelve (12) pentominoes are classified as the letters F, I, L, N, P, T, U, V, W, X, Y, and Z; each are made up of sturdy plastic. Comes in assorted colors that are free from toxic materials.</p> <p>3. Comes in set of 6 equivalent to 72 pieces (minimum) contained in a plastic storage box.</p> <p>4. Shall be free from toxic materials.</p> <p>5. Brand must be permanently marked on the storage.</p>		
17	Plastic Two-colored Counters, 1-inch	<p>Functional Specifications: Used to represent integers and demonstrate fundamental operations on integers.</p>		

	diameter, 200 pcs/set	<p>Performance Specifications: Must be able to demonstrate/represent set of numbers, skip counting and integers; perform fundamental operations on integers.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Material: Hard Plastic 2) Minimum of 200 pieces per set (double-sided color) 3) Must have smooth surface and edges 4) Chip's diameter: 22mm (minimum) 5) Chip's thickness: 1mm (minimum) 6) Comes with a transparent plastic container with cover 7) Shall be free from toxic materials. 8) Brand must be permanently marked on the item. 		
18	Probability Kit	<p>Functional Specifications: A set of mathematical manipulative used to demonstrate different concept-formation activities in probability.</p> <p>Performance Specifications: Must be able to demonstrate probability concepts using cards, counters, dice, spinners, coins, bills and/or combination of these mathematical manipulatives.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Demonstrate probability, random and selective sampling. 2. Class kit, at least 180 pcs in a box for large group or individual learning. <p>Consist of the following:</p> <ol style="list-style-type: none"> a) 30 combination of activities and teacher demonstration on cards b) 52 pcs (1 set) playing cards c) 9 pcs different spinners; d) 50 pcs coins; e) 15 pcs polyhedral number dice; f) 3 pcs dot dice; g) 30 two-color (back-to-back) counters or red and yellow chips; h) 5 pcs coin dice i) 8 pcs number dice <ol style="list-style-type: none"> 3. Comes with transparent plastic container with cover. 4. Shall be free from toxic materials. 5. Brand must be permanently marked on the container. 		
19	Tangrams, set of 30	<p>Functional Specifications: Used to introduce spatial relationships</p> <p>Performance Specifications: Must be able to use as an aid in developing mathematical concepts such as area, perimeter and patterns.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Tangram includes seven geometric shapes made up of five triangles (two small triangles, one medium triangle, and two large triangles), a square, and a parallelogram that are distinct in color. 2) The three different-size Tangram triangles are all similar, right isosceles triangles. Thus, the triangles all have angles of 45°, 45°, and 90°, and the corresponding sides of these triangles are proportional. 3) All the angles of the Tangram pieces are multiples of 45—that is, 45°, 90°, or 135°, and that the small Tangram triangle is the unit of measure that can be used to compare the areas of the Tangram pieces. 4) Material: Plastic that are free from toxic materials. 5) The size of the largest square that the 7 tangram pieces can form is 114 x 114 mm (minimum) with thickness of 7mm (minimum). 6) In this set, there is at least 6 distinct color. 7) Comes with a sturdy plastic that stores set of 30 tangram (210 pieces) and free from toxic materials. 8) Shall be free from toxic materials. 9) Brand must be permanently marked on the item. 		
MATHEMATICAL TOOLS & INSTRUMENT				
9	1	Balance, Double-pan	<p>Functional Specifications: Used to compare object masses.</p> <p>Performance Specifications: Must be able to measure mass of an object up to 1000 grams.</p> <p>Design Specifications:</p>	

		<p>1) Used for comparative weighing to determine the difference in mass between two (2) objects, the double-platform beam balance comes equipped with built-in sliding masses.</p> <p>2) Capacity: 2,000 grams</p> <p>3) Readability: 2 grams</p> <p>4) Weigh Beam Capacity x Readability: 10 g x 0.1 g, 200 g x 10 g</p> <p>5) NTEP Resolution: 1 : 5,000</p> <p>6) Platform size: Ø15-16 cm</p> <p>7) Platform type: Plate (metal)</p> <p>8) Dimensions (w x d x h): 35-37 cm x 24-26 cm x 17-19 cm</p> <p>9) Comes with four (4) Weights as follows:</p> <p>9.1) 1 pc. 1,000-gram Weight</p> <p>9.2) 1 pc. 500-gram Weight</p> <p>9.3) 1 pc. 200-gram Weight</p> <p>9.4) 1 pc. 100-gram Weight</p> <p>10) Comes with an Instruction Manual in English.</p> <p>11) Comes with a storage plastic case.</p> <p>12) Manufacturer of the country of origin shall issue certificate of calibration for every item.</p> <p>13) Brand must be permanently marked on the item.</p>		
2	Blackboard Triangle, 30° x 60° and 45° x 45°	<p>Functional Specifications: Used to demonstrate special triangles.</p> <p>Performance Specifications: Must be able to show relationship among sides and angles of special right triangles.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Material: Plastic, smooth, not flexible and with handle 2. Permanent graduation markings in cm in all sides 3. For 30° x 60°: Base: 50 cm minimum Thickness: 4 mm minimum 4. For 45° x 45°: Base: 50 cm minimum Thickness: 4 mm minimum 5. Individually packed in a sturdy plastic bag with zipper 6. The items shall be free from toxic materials. 7. Brand must be permanently marked on the item. 		
3	Calculator, Graphing, non-projectable	<p>Functional Specifications: Used to calculate, graph, and analyze mathematical concepts that has been programmed to it as one of its built-in functions.</p> <p>Performance Specifications: Must be able to store, calculate, display, graph, input, analyze and interpret data, simple and complex equations/formula, graphs and/or charts using easy access function menus/keys.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Non-projectable Graphing Calculator; 2. Stores/calculates/displays input data, complex equations and formulas, graph and or chart; 3. Upgradeable operating system. Softwares are accessible via internet and may be downloaded upon receipt of the unit and thereafter; 4. Memory: 26 KB-RAM (minimum) and 450 KB-ROM (minimum); 5. Display size: at least 8 lines x 16 characters per line; 6. Seven (7) different graph styles for differentiating the look of each graph drawn; 7. Easy access function menus; 8. Readily connectable to Personal Computers (comes with connection accessories); 9. Operates on dry cells. Comes with dry cells and ready to use; 10. Comes with user's manual in English containing operation guide of the featured functions and in replacing the battery; 11. Must operate as stated above and in the manual; and 12. Brand must be permanently printed on the item. 		
4	Calculator, Scientific	<p>Functional Specifications: Used to show mathematical computations.</p> <p>Performance Specifications: Must be able to show correct mathematical calculations using its built-in functions/formula.</p> <p>Design Specifications:</p>		

		<p>1. Display: LCD, 2 line(s) X 10 characters (minimum), stably shows input-expressions/equation, calculation result, and various indicators;</p> <p>2. Built-in functions not less than 240 inclusion of the following:</p> <ul style="list-style-type: none"> a) Basic Calculations: arithmetic, fraction, percentage, degrees, minutes, seconds, radian (including conversion of the mentioned Basic Calculations); b) Memory calculation, Logarithm and Hyperbolic functions; c) Statistical functions (e.g.: Statistical relationships, standard deviation, Permutation, Combination, etc.); and d) Trigonometric functions: sin, cos, tan, sin-1, cos-1, tan-1; <p>3. Basic keys and function keys are labeled permanently (resistant to finger rub and light acid (vinegar) contamination) and operates as such correspondingly;</p> <p>4. Power requirement: two way dual (battery, built-in solar system), the unit consistently operational after replacing the battery for three trials, its solar system powers the unit normally in a well lit room without the battery;</p> <p>5. Brand must be permanently printed on the case.</p>		
5	Digital Clock, tabletop	<p>Functional Specifications: Used to show/display the time in numerals.</p> <p>Performance Specifications: Must be able to display hh:mm format.</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. Font Height: 30mm to 40mm; 2. Dry Cell Battery operated 3. LCD display; With or without On/Off switch 4. Minimum Display: Time (hour, minutes & seconds); 5. Can be set in 12-hour setting; 6. The item shall be free from toxic materials; 7. Ready to use and comes with a new battery. 		
6	Measuring Kit (Volume)	<p>Functional Specifications: Used primarily to measure the volume of liquid or bulk solid</p> <p>Performance Specifications: Must be able to measure volume of liquid using different types of measuring tools</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1) Material: Plastic, translucent so that liquid inside can be seen easily 2) Kit includes the following measuring tools: <ul style="list-style-type: none"> a. Set of Measuring Jars: <ul style="list-style-type: none"> i) 1 gallon/4000 mL ii) 1/2 gallon/2000 mL iii) 1 quart/1000 mL iv) 1 pint/500 mL v) 1 cup/250 mL b. Set of measuring pitchers: <ul style="list-style-type: none"> i) 1 quart = 32 oz/1000 mL ii) 1 pint = 16 oz/500 mL iii) 1 cup = 8 oz/250 mL c. Set of measuring cups: <ul style="list-style-type: none"> i) 1 cup/236 mL ii) 1/2 cup/118 mL iii) 1/3 cup/79 mL iv) 1/4 cup/59 mL v) 1/8 cup/29.5 mL d. Set of measuring spoons: <ul style="list-style-type: none"> i) 1 Tbsp (15mL) ii) 1/2 Tbsp (7.5mL) iii) 1 tsp (5mL) iv) 1/2 tsp (2.5mL) v) 1/4 tsp (1.25mL) 3) Features include both customary and metric measurement showing appropriate graduations in each kind of measuring tools. 4) Permanent graduations and labels. 5) Materials used shall be free from toxic materials. 6) Brand must be permanently printed on the case. 		
7	Meterstick	<p>Functional Specifications: Used to measure length.</p>		

		<p>Performance Specifications: Must be able to measure length of objects in flat surfaces up to 1,000mm in Metric and 39.37" in English standards of measurement.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Material: Plastic; 2. Thickness: 6 mm (minimum); 3. Width: 24 mm (minimum); 4. Length: 1,005 mm (minimum); 5. The front is scaled in centimeters, numbered in every centimeter with 0.1 cm (or 1 mm) divisions; 6. The back is scaled in inches, numbered in every inch with 1/8 inch divisions; 7. The numbers and division lines are in dark color; 8. Must be straight and flat; and free from toxic materials; 9. Edges and Surfaces should be smooth and even; 10. Comes with plastic jacket; 11. Standard abbreviation of the measurement unit/s must be followed. 		
8	Protractor, student-type	<p>Functional Specifications: Used to measure angles in degrees.</p> <p>Performance Specifications: Must be able to draw/construct and measure angles and arcs up to 180°.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Protractor, student-type, plastic, transparent, semi-circular, 180°; 2. Ø150mm (or 75mm radius), 1mm thick (minimum); 3. Angular graduations are in degrees, from 0° to 180°. With two (2) sets of numerals, one reading clockwise and the other reading counterclockwise; 4. Linear graduations are in millimeters, from 0 to 100mm; 5. With a hole at vertex point enough for a fine string to pass through it; 6. Plastic Surface Finish: Smooth, clear, and free from scratches; 7. It must be horizontally level when laid flat on a table - no warping; 8. Comes with a plastic case; and shall be free from toxic materials. 		
9	Ruler, Plastic, 12 inches/30 cm	<p>Functional Specifications: Used to measure length and draw straight lines</p> <p>Performance Specifications: Must be able to measure length of objects in flat surfaces up to 30cm in Metric and 12" in English standards of measurement.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Ruler, plastic, transparent, smooth surface, and 1 mm thick (minimum); 2. Width x Length: 28 mm x 314 mm (minimum); 3. Graduations: Metric graduations on one side while English graduations on the other side: <ul style="list-style-type: none"> *Metric graduations are in centimeters, from 0 cm to 30 cm, with every cm subdivided by 1mm graduation. *English graduations are in inches, from 0 inches to 12 inches, with every inch subdivided by 1/16 graduation. 4. Clear, readable black, non-groove permanent prints (will not fade and cannot be scratched off); 5. Bendable up to U-shape when held at both ends; and 6. The item shall be free from toxic materials. 		
10	Scale, Spring, Hanging type	<p>Functional Specifications: Used to measure weight or force by hanging objects</p> <p>Performance Specifications: Must be able to measure mass of an object up to 1,000 grams.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Maximum Capacity: 25 kilograms 2. Must conform with industry standard graduations for rated capacity. 3. Color: Any Color 4. Comes with an Instruction Manual in English 5. Manufacturer of the country of origin should issue certificate of calibration for every item. 		

			6. Brand must be permanently printed on the item.		
11	Scale, Weighing, analog, 10 kg. capacity	<p>Functional Specifications: Used to measure weight and/or mass of an object</p> <p>Performance Specifications: Must be able to measure mass of an object up to 10 kilograms.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Weighing Scale, 10 kg. Capacity, starting from zero (0) to 10kg. 2. Dual mode English/metric display that displays weight in pounds and grams. 3. Has a large round dial display for easy use. 4. Includes a removable stainless steel bowl which is dishwasher safe. This weighing scale is a classic rotary dial mechanical kitchen scale 5. Color: Any Color 6. Format: Mechanical kitchen scale 7. Mechanism Type: Spring Lever 8. Measurement units: Pounds/Kilograms 9. Display Type: Round speedometer type dial 10. Scale Size: 210mm Width (minimum) x 235mm Height (minimum) 11. Dial Increments: 1 oz. / 50 g. 12. Manufacturer of the country of origin should issue certificate of calibration for every item. 13. Brand must be permanently marked on the item. 			
12	Scale, Weighing, bathroom-type	<p>Functional Specifications: Used to measure a person's weight</p> <p>Performance Specifications: Must be able to measure weight from 0 to 120 kg</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1) Mechanical Dual Reading lbs/kg bathroom scales (analog) 2) Comes with a free Body Mass Index Chart printed and laminated on glossy paper (Font Height: 1 cm. minimum, Style: Century Gothic or Arial) 3) Maximum Capacity: 120 kgs/264 lbs 4) With two years warranty 5) Should be made of metal and plastic combination with powder coating finish for metal parts. 6) Will remain stable when steps on it. 7) Manufacturer of the country of origin should issue certificate of calibration for every item. 8) The item should be free from toxic materials. 9) Brand must be permanently marked on the item. 			
13	Stopwatch, digital	<p>Functional Specifications: Used to show time elapse in hours, minutes, seconds.</p> <p>Performance Specifications: Must be able to show time elapsed in hours, minutes and seconds.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Digital type, water-resistant (5-bar) 2. Start, stop, and re-set operations 3. Display Number: 4mm W x 10mm H (minimum) 4. Measure Unit: 1/100th of a second 5. Working Range: up to 23hr 59min 59sec 6. Individually and properly packed in a box. 7. Instruction Manual in English 8. Overall W x H x T: 60-61mm x 67-68mm x 20-21mm 9. Ready to use and comes with extra batteries. 			
14	Tape Measure, 1.5 meters	<p>Functional Specifications: Used to quantify the size of an object or the distance between objects</p> <p>Performance Specifications: Must be able to measure size/distance of an object up to 1.5 meters.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Tape Measure, 12 mm width x 1.5 meter long (minimum) 2. Made of flexible fiberglass fabric with metal end pieces 3. Color: White with black graduation markings 4. Graduation: in cm on one side and inches on the other side, smallest graduation in mm, on the opposite side in 1/16 of an inch 			

			5. Comes with a plastic case.		
	15	Template, shapes	<p>Functional Specifications: Used to scaffold drawing of basic geometrical shapes.</p> <p>Performance Specifications: Must be able to aid drawing different geometrical shapes.</p> <p>Design Specifications: 1. A transparent plastic template; minimum of 24 geometric shapes Note: The kinds of geometric shapes approved during post qualification shall be the same shapes to be approved during the pre-delivery inspection. 2. Ideal for drawing geometric shapes. 3. Minimum dimensions: 14 cm x 20 cm 4. Minimum thickness: 2 mm 5. The items shall be free from toxic materials.</p>		
	16	Thermometer, Clinical, digital	<p>Functional Specifications: Used to determine human body temperature.</p> <p>Performance Specifications: Must be able to measure body temperature digitally.</p> <p>Design Specifications: 1. Clinical Thermometer, for armpit use 2. With yellow or white background, nice looking and easy reading 3. Temperature range: 35°C - 42°C and 94°F - 108°F (dual scale) 4. Accuracy: 0.1°C and 0.2°F 5. Length: 105mm (minimum) - 115mm (maximum) 6. With plastic tube case 7. Brand must be permanently marked on the item.</p>		
MODELS: EARTH AND OTHER HEAVENLY BODIES					
10	1	Globe, Celestial	<p>Functional Specifications: Used to illustrate the relative locations of observable celestial objects with respect to the earth in the celestial sphere (celestial sphere is what we commonly called sky)</p> <p>Performance Specifications: Should be able to illustrate the relative locations of observable celestial objects with respect to the earth in the celestial sphere (celestial sphere is what we commonly called sky)</p> <p>Design Specifications: 1. Star Globe; diameter 11.875-12.125 inches, transparent plastic 2. Each rotates independently. The star map shows principal stars to the 5th magnitude, names of major stars and constellations, and includes the ecliptic, right ascension and declination scale. 3. Must include Names of Months and Days Scales around the globe for easy reference of constellation 4. All labels permanently marked on the item 5. The horizon mounting allows the Globe to be set for any location. 6. Globe is supported on a cradle base made of hard/tough plastic. 7. The Nine Dash Line should not appear. 8. With English User's Manual includes: a. on the Guide on Using the Model and Sample Student Activity. b. Guide on Using the Model c. Student Activity Sheet and Teacher's Guide 9. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: I. Training Video Contents: a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive.</p>		

		<p>c. Shall have a High-Definition resolution of at least 1080p.</p> <p>d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.</p> <p>e. Shall comply an aspect ratio of 4:3.</p> <p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p> <p>10. Brand must be permanently marked on the item.</p>		
2	Globe, Terrestrial	<p>Functional Specifications: Used to represent the earth in three dimensions and the locations and sizes of land masses and water bodies in scale accuracy</p> <p>Performance Specifications: Should be able to represent the earth in three dimensions and the locations and sizes of land masses and water bodies in scale accuracy</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Globe diameter: 11.875-12.125 inches Shows the following: <ul style="list-style-type: none"> (a) All continents, countries with their capitals, and important cities and places (b) Updated with newly established countries, or re-named countries and cities. (c) Illustrates the flow and directions of ocean currents (d) Lines of Latitudes (0° to 90°), graduated both in Northern and Southern Latitudes and Longitudes (0° to 180°), graduated both in Eastern and Western Longitudes (e) International Date Line, Arctic Circle, Tropic of Cancer, Tropic of Capricorn and Antarctic Circle (f) Lines of Equator and Prime Meridian (g) Names of mountain, mountain ranges, volcano, ocean floors, gulfs, seas and lakes (h) Names of continents, seas and country boundaries should be according to international standard. (i) Philippine territory emphasizing the "West Philippine Sea" as one of the Philippine territorial sea boundaries. (j) The Nine Dashed Line should not appear. The globe which is made of plastic is mounted on a plastic meridian ring (C-shape) with movable magnifier. The base stand is made of hard/tough plastic. Brand must be permanently marked on the item. 		
3	Landform Demonstration Kit	<p>Functional Specifications: Used to represent the different landforms on the earth's surface in three-dimensions</p> <p>Performance Specifications: Should be able to to represent the different landforms on the earth's surface in three-dimensions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Watertight demonstration tray 19.875-20.125 inches x 4.125-4.375 inches x 1.875-2.125inches Three pieces of flexible colored foam Three pieces fault structures <ul style="list-style-type: none"> a. Made of 6 colored layer of rubber or plastic b. Dimension: 12.875-13.125 inches x 4.625-4.875 inches x 3.375-3.625 inches c. can demonstrates normal, reverse and slide slip fault Erupting 5.0inches x 5.0inches volcano for demonstration With English User's Manual that includes Guide on how to assemble and use the model. For geological study Must be branded and must be permanently marked on the item 		
4	Model, Earth Internal Structure, 1/4 part detachable	<p>Functional Specifications: Used to illustrate the external and internal parts of the earth in three dimensions</p> <p>Performance Specifications: Should be able to illustrate the external and internal parts of the earth in three dimensions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Globe diameter: 11.875-12.125 inches inches Shows the countries and ocean 		

		<p>3. 1/4 part detachable and shows the different layer</p> <p>4. Must have correct permanent markings of the following parts as follows:</p> <ol style="list-style-type: none"> Crust Mantle Outer Core Lower Core <p>5. Made of plastic</p> <p>6. The base stand is made of hard/tough plastic.</p> <p>7. The removable parts must be intact and not falling.</p> <p>8. The Nine Dash Line should not appear.</p> <p>9. Must be branded and permanently marked in the item.</p>		
5	Model, Seismograph	<p>Functional Specifications: Used to demonstrate how a seismograph records earthquakes and their comparative strengths</p> <p>Performance Specifications: Should be able to demonstrate how a seismograph records earthquakes and their comparative strengths, specifically:</p> <ol style="list-style-type: none"> The recording pen is attached to a weight suspended from a support that is connected to a metal base stand. The support moves with the vibrations & the pen records on a recording paper as the paper is manually pulled through a metal frame Earthquakes are simulated by vibrating the table on which the model is mounted. <p>Design Specifications:</p> <ol style="list-style-type: none"> Consist of a roll of recording paper (63-65 mm wide) with mounting, recording pens, suspended weight, support with a painted metal base stand, recording frame, and table clamp (opening-63-65 mm). The metal stand rod (320-325 mm long) and metal support are chrome-plated. The metal frame is of galvanized iron sheet. Base dimensions : 293-295mm x 152-155mm x 23-25mm With English User's manual that includes the operation and guide on how to assemble the model. Brand must be permanently marked in the item. 		
6	Model, Solar System	<p>Functional Specifications: Used to show the sun and the eight (8) major planets of the solar system in three dimensions, in correct order from the nearest to the farthest from the sun</p> <p>Performance Specifications: Should be able to show the sun and the eight (8) major planets of the solar system in three dimensions, in correct order from the nearest to the farthest from the sun</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> shows the eight (8) major planets of the solar system namely: a) Mercury, b) Venus, c) Earth, d) Mars, e) Jupiter, f) Saturn, g) Uranus, and h) Neptune with each planet color code and shaded correctly each planet can be manually operated to revolve around sun Dimensions: Sun: 5.875-6"-diameter, Total dimension: height 13.875-14 inches; length 20.875-21 inches, plated steel arm Sun made of plastic material, support base made of metal Must be branded and permanently marked on the item 		
7	Model, Sun Internal Structure, 1/4 part detachable	<p>Functional Specifications: Used to illustrate the external and internal parts of the sun in three dimensions</p> <p>Performance Specifications: Should be able to illustrate the external and internal parts of the sun in three dimensions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Model diameter: of 11.875-12 inches 1/4 part detachable and shows the different layer Must have correct permanent markings of the following parts as follows: <ol style="list-style-type: none"> Core Radiation Zone Convection Zone Chromosphere Photosphere Prominence Sunspots 		

		<p>4. The layers of the model should be correctly labelled with permanent markings, not sticker.</p> <p>5. Made of Plastic</p> <p>6. The base stand is made of hard/tough plastic.</p> <p>7. The removable parts must be intact and not falling.</p> <p>8. <u>Must be branded and permanently marked on the item.</u></p>		
8	Model, Sun-Earth-Moon	<p>Functional Specifications: Used to show the relative locations of the sun, the earth and the moon three dimensions, and the synchrous revolutions of the moon around the earth and the earth's revolution around the sun</p> <p>Performance Specifications: Should be able to show the relative locations of the sun, the earth and the moon three dimensions, and the synchrous revolutions of the moon around the earth and the earth's revolution around the sun</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Hand-operated gear drive that moves the Earth and moon in relation to the Sun. Shows the Earth's rotation, revolution, day and night, tilt of its axis, phases and eclipses of the Moon. Supported by a sturdy base and chrome-plated steel parts 2. Sun's sphere is illuminated with hole to focus a beam of light always to the globe; also indicates the month and phase of the moon in relation to the sun. 3. All spheres (Sun, Earth, Moon) made of plastic; sizes must reflect relative differences of sizes between Sun, Moon, and Earth. Sun's diameter 5.875-6 inches. 4. The Nine Dash Line should not appear. 5. With English User's Manual that includes operation guide and guide on how to replace the bulb in the model 		
9	Model, Tectonics Demonstrator	<p>Functional Specifications: Used to simulate tectonic processes</p> <p>Performance Specifications: Should be able to simulate tectonic processes</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Tectonic container dimensions: <ul style="list-style-type: none"> Length Range: 10 range -13 inches Width Range: 6 range -8 inches Height Range: 3 range - 5 inches Shape: Rectangular 2. The model contains the following: <ol style="list-style-type: none"> a. Two pieces L-shaped plastic plates with screw type long push handles b. One piece Rectangular / Square plastic plates with screw type short push handle used to flatten the sand inside the tectonic container. c. 12 pieces of washers d. 12 pieces of nuts e. Includes 1 kilogram yellow sand and 1 kilogram green sand. 3. With English User's Manual that includes <ol style="list-style-type: none"> a. Operation Guide b. Guide on how to assemble the model. c. Guide on how to use the model with pictures d. Student Activity Sheets 6. <u>Must be branded and must be permanently marked on the item</u> 		
10	Model, Volcano, cross section	<p>Functional Specifications: Used to illustrate the major external and internal parts of a volcano in three dimensions</p> <p>Performance Specifications: Should be able to represent the major external and internal parts of a volcano in three dimensions</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Dimensions: 10-12 inches diameter x 10-12 inches height 2. The parts of the volcano correctly named: Sill, Strata, Dike, Crust, Magma Chamber, Upper Mantle, Lower Mantle, and Vent; permanently marked on the item 3. Detailed cross-section shows the inside of the volcano 4. With removable red tube 5. With 12.5-13 inches clear, circular, plastic tray which fit in the entire model 6. It simulates the volcano eruption 7. Easy to clean and reusable. 		

		8. With English Users' Manual that includes operation guide with easy-to-prepare lava recipe 9. Must be branded and permanently marked on the item		
11	Rock Samples, 24 pcs/set, (minerals of 3 rock types)	Functional Specifications: Used to show actual samples of most common rocks found on the earth's crust Performance Specifications: Should be able to show actual samples of most common rocks found on the earth's crust Design Specifications: 1. Samples/references for in identifying and classifying rocks 2. Boxed mineral and rock collection. Should have at least 24 samples comprising minerals: 8 types igneous, 8 types sedimentary, and 8 types metamorphic rocks. There should be colored pictures of the rocks for reference. 3. Rock size: 8 cm ³ -20cm ³ (8 mL - 20mL by water displacement) 4. Rock should be placed in a plastic packing and properly labelled with its name. 5. Samples are individually bagged in appropriate size transparent plastic and numbered and correspond to the description in the lid of the box. Each rock name should be accompanied with rock type, Example: "Basalt" (igneous) 6. The box is made of sturdy plastic, compartmentalized for each sample 7. Made up of non-toxic material, free from any sharp edges. 8. Brand permanently marked on the container box		
12	Telescope, Astronomical (Reflecting)	Functional Specifications: Used to enhance the appearance of details of celestial objects not visible to the unaided eye Performance Specifications: Should be able to enhance the appearance of details of celestial objects not visible to the unaided eye Design Specifications: 1. Equatorial Reflector Telescope Features a) 112-114mm Aperture b) Focal Length: 900-1000 mm c) Rack-and-Pinion Focuser d) Equatorial Mount with manual control cables e) Setting Circles f) Latitude Control with Scale g) Two Eyepieces - 8.5-9.5mm and 23-27mm diameter each, multi coated h) Tripod i. Maximum Height: 125 cm ii. Adjustable-height iii. Aluminum-alloy legs iv. Tray to hold eyepieces, lights, and accessories v. Spiked feet add stability on uneven/soft ground 2. With English User's Manual that includes Operation Guide and Guide on how to assemble the model. 3. With permanent marking at the bottom of each eyepiece stating the model, focal length, and diameter. 4. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: I. Training Video Contents: a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3.		

			<p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p> <p>5. Must be branded and permanently marked on the item</p>		
MODELS: THE HUMAN ANATOMY					
11	1	Model, Human Brain	<p>Functional Specifications: Used to demonstrate the anatomy of the brain.</p> <p>Performance Specifications: Must be able to illustrate the parts and functions of the sense organs of the human body, specifically the brain.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Life-size, made of non-toxic plastic material (Certificate of non-toxicity is required) 2. With plastic dowels or magnets that interconnect the part components. 3. The model can be disassembled into 8 parts: <ol style="list-style-type: none"> a. 4 cerebrum parts (temporal, occipital lobes, frontal and parietal lobes); b. 2 brain stem parts (right and left); c. 2 cerebellum parts (right and left) 4. Shows Thalamus, Pituitary gland, Hypothalamus and Pons 5. Color markings on the brain model illustrate arteries (red) and veins (blue), cranial nerves (yellow), along with the cortex (pink) and medulla fiber (white) 6. The model is washable, free from any label and sharp parts. 7. Paint shall be permanent and not be removed when washed with soap and water. 8. With name of the model: HUMAN BRAIN MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked on the base. 9. The model rests in a plastic base. 10. Dimension (minimum): 18 cm x 14 cm x 13 cm 11. Safely packed in a box. 12. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. 13. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30 mm e. Title: HUMAN BRAIN MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) f. The model picture in white background shall be big enough to occupy the center part of the card . g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized). h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. 14. Must be branded and brand new. The brand shall be permanently marked on the base. 		
	2	Model, Human Circulatory System	<p>Functional Specifications: Used to show details of blood flow.</p> <p>Performance Specifications: Must be able to illustrate how the respiratory and circulatory systems work together to transport nutrients, gases, and other molecules to and from the different parts of the body;</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Life-size, colored relief model. 2. Frontal plane is cutaway so blood circulation can be traced to the major organs and extremities. 3. Made of non-toxic plastic material (Certificate of non-toxicity is required) 4. With arterial system: aorta artery, brachial artery, iliac artery, renal artery, mesenteric artery, pulmonary artery, carotid artery, tibial artery, femoral artery, palmar digital artery, ulnar artery, radial artery, popliteal artery, subclavian artery 5. With venous system: basilic vein, renal vein, iliac vein, pulmonary vein, femoral vein, popliteal vein, brachial vein, 		

		<p>subclavian vein, palmar digital vein, tibial vein, dorsal venous arch, superior vena cava and inferior vena cava</p> <p>6. With heart, lung, liver, spleen, kidneys, partial skeleton</p> <p>7. The model is washable and must be free from any labels.</p> <p>8. Paint shall be permanent and not be removed when washed with soap and water.</p> <p>9. With name of the model: HUMAN CIRCULATORY SYSTEM MODEL (Font style: Arial, Font size: 32, UPPERCASE, BOLD) permanently marked on the baseboard.</p> <p>10. With no sharp parts and defects.</p> <p>11. Mounted on a stable baseboard.</p> <p>12. Dimensions (minimum): 80cm H x 30cm L x 5cm W</p> <p>13. Safely packed in a box</p> <p>14. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts.</p> <p>15. Key card details:</p> <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Portrait Lamination thickness: minimum 0.30mm Title: HUMAN CIRCULATORY SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 24, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized,) Line with arrowhead of 1.25 pt width shall point to the specific part being labeled <p>16. Must be branded and brand new. The brand shall be permanently marked on the baseboard.</p>		
3	Model, Human Ear	<p>Functional Specifications: Used to study the anatomy of the Human Ear.</p> <p>Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human ear.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Dissectible into 4-6 parts Colorful 3D model made of plastic material Features: Outer ear, middle ear, inner ear, pinna, auditory canal, eardrum (tympanic membrane), vestibulocochlear nerve, semicircular canal, cochlea, Eustachian tube, including a removable hammer, anvil, and stirrup Made of non-toxic plastic material (Certificate of non-toxicity is required) The model is washable, free from any label and sharp parts. Paint shall be permanent and not be removed when washed with soap and water. With name of the model: HUMAN EAR MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. Mounted on a stable base Dimensions (minimum): 33 cm L x 23 cm H x 20 cm W Safely packed in a box Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. Key card details: <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Landscape Lamination thickness: minimum 0.30 mm Title: HUMAN EAR MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) Line with arrowhead of 1.25 pt width shall point to the specific part being labeled Must be branded and brand new. The brand shall be permanently marked on the base. 		

4	Model, Human Endocrine System	<p>Functional Specifications: Used to study the anatomy of the Human Ear.</p> <p>Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human ear.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Dissectible into 4-6 parts 2. Colorful 3D model made of plastic material 3. Features: Outer ear, middle ear, inner ear, pinna, auditory canal, eardrum (tympanic membrane), vestibulocochlear nerve, semicircular canal, cochlea, Eustachian tube, including a removable hammer, anvil, and stirrup 4. Made of non- toxic plastic material (Certificate of non-toxicity is required) 5. The model is washable, free from any label and sharp parts. 6. Paint shall be permanent and not be removed when washed with soap and water. 7. With name of the model: HUMAN EAR MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 8. Mounted on a stable base 9. Dimensions (minimum): 33 cm L x 23 cm H x 20 cm W 10. Safely packed in a box 11. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. 12. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30 mm e. Title: HUMAN EAR MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) f. The model picture in white background shall be big enough to occupy the center part of the card. g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled 13. Must be branded and brand new. The brand shall be permanently marked on the base. 		
5	Model, Human Eye, 6 parts	<p>Functional Specifications: Used to demonstrate the anatomy of the eye.</p> <p>Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human eye.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. 3D Model made of non-toxic plastic material (Certificate of non-toxicity is required) 2. With six (6) removable colored parts sectioned horizontally: <ol style="list-style-type: none"> a. Two halves of the sclera with cornea and eye muscle attachments b. Both halves of the choroid with iris and retina c. Lens d. Vitreous body/humour 3. Features: sclera, iris, cornea, pupil, lens, ciliary body and muscle, conjunctiva, retina, optic nerve, retinal blood vessels, vitreous body 4. The model is washable, free from any label, sharp parts and defects. 5. Paint shall be permanent and not be removed when washed with soap and water. 6. With name of the model: HUMAN EYE MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on one post stand with a stable base 8. Dimensions (minimum): 13 cm L x 13 cm W x 22 cm H 9. Safely packed in a box 10. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name; labeled with the required parts 		

		<p>11. Key card details:</p> <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Landscape Lamination thickness: minimum 0.30 mm Title: HUMAN EYE MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. Shall contain information in American English on how to assemble and disassemble the model. This shall occupy at the back part of the key card provided the prints are not visible to the other side. <p>12. Must be branded and brand new. The brand shall be permanently marked on the base.</p>		
6	Model, Human Nervous System	<p>Functional Specifications: Used to illustrate the schematic representation of the central and peripheral nervous system.</p> <p>Performance Specifications: Must be able to show the complex network of nerve cells and the motor nerves pathways.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> One-half life-size, colored, relief model made of non-toxic plastic material (Certificate of non-toxicity is required). The model shows the structure of the nervous system (brain, cerebrum, cerebellum, spinal cord, radial nerve, ulnar nerve, median nerve, lumbar plexus, femoral nerve, sacral plexus, sciatic nerve, brachial plexus, intercostal nerve, common peroneal nerve, tibial nerve, saphenous nerve, finger nerve and toe nerve). The pathway of the main nerves is well illustrated in relation to the skeleton. The model is washable, free from any label, sharp parts and defects. Paint shall be permanent and not be removed when washed with soap and water. With name of the model: HUMAN NERVOUS SYSTEM MODEL (Font style: Arial, Font size: 30, UPPERCASE, BOLD) permanently marked on the base. Mounted on a stable baseboard. Dimensions (minimum): 80cm H x 30cm L x 5 cm W Safely packed in a box. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name; labeled with the required parts. Key card details: <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Portrait Lamination thickness: minimum 0.30 mm Title: HUMAN NERVOUS SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 20, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. Must be branded and brand new. The brand shall be permanently marked on the baseboard. 		
7	Model, Human Nose (Nasal-Throat Anatomy)	<p>Functional Specifications: Used to illustrate the anatomy of the human nose.</p> <p>Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human nose.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Life-size, colorful model that features nasal throat anatomy. 		

			<p>2. Shows frontal sinus, sphenoid sinus, conchae, nasal vestibule, hard palate, soft palate, oral cavity, tongue, hyoid bone, epiglottis, pharynx, larynx and vocal fold.</p> <p>3. Made of non-toxic plastic material (Certificate of non-toxicity is required)</p> <p>4. The model is washable, free from any label, sharp parts and defects.</p> <p>5. Paint shall be permanent and not be removed when washed with soap and water.</p> <p>6. With name of the model: HUMAN NOSE MODEL (Font style: Arial, Font size: 26, UPPERCASE, BOLD) permanently marked on the base.</p> <p>7. Mounted on a stable base.</p> <p>8. Dimensions (minimum): 12 cm x 21 cm (width x full height)</p> <p>9. Safely packed in a box.</p> <p>10. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts.</p> <p>11. Key card details:</p> <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Portrait Lamination thickness: minimum 0.30 mm Title: HUMAN NOSE MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. <p>12. Must be branded and brand new. The brand shall be permanently marked on the base.</p>		
8	Model, Human Skeleton		<p>Functional Specifications: Used as a visual representation of the internal framework of the body.</p> <p>Performance Specifications: Must be able to show the different types of bones.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Life-size model made of non-toxic, hard plastic material in natural bone color (Certificate of non-toxicity is required). Mounted on stable metal stand, stainless steel rod, Ø minimum of 12 mm., with 4 or 5 legged unbreakable plastic with roller casters as support to the skeleton. All joints properly articulated and wired; all metal materials that interconnect the bones shall be stainless steel. Features: frontal, parietal, temporal, occipital, maxilla, mandible, hyoid bone, vertebral column, clavicle, scapula, sternum, xiphoid process, ribs, humerus, radius, ulna, carpals, metacarpals, phalanges, ilium, sacrum, coccyx, pubis, ischium, femur, patella, tibia, fibula, calcaneus, tarsals, metatarsals and phalanges The model is washable, free from any label, sharp parts and defects. Minimum height of the human skeleton: 158 cm Minimum height after mounting on the stand: 168 cm Some bones can be assembled or detached. Enclosed in a plastic and packed in a sturdy box. Provided with a dust cover. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. Key card details: <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Portrait Lamination thickness: minimum 0.30mm Title: HUMAN SKELETAL SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. 		

			<p>g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).</p> <p>h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled</p> <p>13. Must be branded and brand new. The brand must be permanently marked on the item.</p>		
9	Model, Human Torso	<p>Functional Specifications: Used to visualize the structures/organs found in the human body.</p> <p>Performance Specifications: Must be able to illustrate how the organs are connected in a system.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Life-size, smooth-finish, plastic material mounted on a stable base. 2. Detachable head; 3. Open back, exposed spine with 2 to 4 removable vertebra and spinal cord 4. With interchangeable male and female reproductive organs 5. (Minimum) 32 dissectible parts that include: <ol style="list-style-type: none"> a.) removable head (parts of mouth and nasopharynx exposed) b.) with brain exposed (1 to 8 part), with arteries c.) eye with optic nerve d.)female breast plate with plate rib; e) right and left lung (2 to 4 part) f.) 2-part heart g) 2-part stomach h.) liver with gall bladder, i.) 3 to 4 part intestinal tract with appendix flap j.) kidney half k.) 3-part female genital organ with removable fetus l.) 4-part male genital organ 6. Height (minimum): 845 mm. 7. True to life color and free from toxic materials (Certificate of non-toxicity is required). 8. Will be able to stand upright with removable parts intact and not falling. 9. The model is washable, free from any labels and sharp parts. 10. Paint shall be permanent and not be removed when washed with soap and water. 11. With name of the model: HUMAN TORSO MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 12. Enclosed in a polystyrene foam and packed in a sturdy box 13. With English User's manual that includes description of the model, diagram with labels, and guide on how to assemble/disassemble the model. 14. Manual details: <ol style="list-style-type: none"> a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm) b. Size (minimum): 165 mm x 215 mm Fold; (minimum): 330 mm x 215 mm Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (minimum): 10 e. Pictures shall be in full color 15. Must be branded and brand new. The brand shall be permanently marked on the base. 			
10	Model, Lung Demonstration	<p>Functional Specifications: Used to demonstrate how the lungs work and the concept of respiration.</p> <p>Performance Specifications: Must be able to demonstrate the process of respiration.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. This interactive, model consists of the following: <ol style="list-style-type: none"> a. clear plastic enclosure b. two (2) rubber balloons c. elastic rubber membrane d. rubber stopper (with one hole) that snugly fits the mouth of the bell jar e. y-tube whose diameter fits the hole on the rubber stopper 2. Made of non-toxic materials (Certificate of non-toxicity is required) 3. Minimum base diameter : 17 cm 4. Minimum height (including stopper): 29 cm 5. Safely packed in a box 			

		<p>6. With English User's manual that shall provide description of the model, it's operation and maintenance guide.</p> <p>7. Manual details:</p> <ol style="list-style-type: none"> Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm) Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread Binding: Saddle Staple Font type: Arial and Font size (minimum): 10 Pictures shall be in full color <p>8. Must be branded and brand new. The brand shall be permanently marked on the item.</p>		
11	Model, Pumping Heart	<p>Functional Specifications: Used to simulate blood flow through the heart chambers.</p> <p>Performance Specifications: Must be able to demonstrate basic heart and pulmonary blood flow.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> An interactive model that illustrates how the heart and lungs work together for oxygen exchange With heart chambers, main artery, veins and lungs labeled clearly Made of non-toxic plastic material; with a rubber pump (Certificate of non-toxicity is required) The liquid is sealed in the model Inclusion: Two (2) extra stopper screws and dye Dimensions (minimum): 29 cm L x 27 cm W x 12 cm D Safely packed in a box With User's manual that shall provide guide on how it works; with heart study/activity instructions <p>9. Manual details:</p> <ol style="list-style-type: none"> Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm) Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread Binding: Saddle Staple Font type: Arial and Font size (minimum): 10 Pictures shall be in full color <p>10. Must be branded and brand new. The brand shall be permanently marked on the item.</p>		
12	Model, Reproductive System, Female (Pelvic Anatomy)	<p>Functional Specifications: Used to visually represent the female reproductive system.</p> <p>Performance Specifications: Must be able to show the parts of the female reproductive and genitourinary system.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Shows a longitudinal section of one-piece, life-size female pelvis. Exhibits colored internal structures of the genitourinary system: urinary bladder, urethra, vagina, cervix, uterus, ovary, fallopian tube, fimbria, rectum, labium minus and labium majus. Made of non-toxic plastic material (Certificate of non-toxicity is required) The model is washable, free from any labels and sharp parts. Paint shall be permanent and not be removed when washed with soap and water. With name of the model: FEMALE REPRODUCTIVE SYSTEM (PELVIC ANATOMY) MODEL (Font style: Arial, Font size: 16, UPPERCASE, BOLD) permanently marked on the base Dimensions (minimum): 25 cm L x 18 cm W x 28 cm H Mounted on a stable base. Safely packed in a box. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts. <p>11. Key card details:</p> <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Landscape Lamination thickness: minimum 0.30 mm 		

			<p>e. Title: FEMALE REPRODUCTIVE SYSTEM (PELVIC ANATOMY) MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 22, UPPERCASE, BOLD)</p> <p>f. The model picture in white background shall be big enough to occupy the center part of the card.</p> <p>g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).</p> <p>h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.</p> <p>12. Must be branded and brand new. The brand shall be permanently mark on the base.</p>		
13	Model, Reproductive System, Male	<p>Functional Specifications: Used to visually represent the male reproductive system.</p> <p>Performance Specifications: Must be able to show the parts of the male urology and reproductive system.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shows a longitudinal section of one-piece, life-size male pelvis. 2. Exhibits bladder, prostate, rectum, seminal vesicle, testicle, epididymis, penis, vas deferens and urethra 3. Made of non-toxic plastic material (Certificate of non-toxicity is required) 4. The model is washable, free from any label, sharp parts and defects. 5. Paint shall be permanent and not be removed when washed with soap and water. 6. With name of the model: MALE REPRODUCTIVE SYSTEM MODEL (Font style: Arial, Font size: 26, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on a stable base 8. Dimensions (minimum): 26 cm H x 15 cm W x 25 cm L 9. Safely packed in a box 10. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. 11. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30mm e. Title: MALE REPRODUCTIVE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) f. The model picture in white background shall be big enough to occupy the center part of the card. g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized,) h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled 12. Must be branded and brand new. The brand shall be permanently marked on the base. 			
14	Model, Skin Block	<p>Functional Specifications: Used to demonstrate the different layers of the human skin.</p> <p>Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human skin.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. 3D relief model made of non-toxic plastic material (Certificate of non-toxicity is required) 2. Exhibits the main structures of the skin such as epidermis, dermis, hypodermis, sweat gland, sebaceous gland, hair shaft, hair follicle, arrector pili muscle, hair root, adipose tissue, pacinian corpuscle, pore of sweat gland duct, nerve and blood vessels 3. The model is washable, free from any label, sharp parts and defects. 4. Paint shall be permanent and not be removed when washed with soap and water. 5. With name of the model: HUMAN SKIN BLOCK MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 6. Mounted on a stable base 			

			<p>7. Dimensions (minimum): 25 cm L x 18 cm W x 27 cm H</p> <p>8. Safely packed in a box</p> <p>9. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts.</p> <p>10. Key card details:</p> <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout Orientation: Landscape Lamination thickness: minimum 0.30mm Title: HUMAN SKIN MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) Line with arrowhead of 1.25 pt width shall point to the specific part being labeled <p>11. Must be branded and brand new. The brand shall be permanently marked on the base.</p>		
MODELS: OTHER BIOLOGICAL STRUCTURES AND SPECIES					
12	1	Model, Animal Cell	<p>Functional Specifications: Used as a visual representation of an animal cell.</p> <p>Performance Specifications: Must be able to illustrate structures in an animal cell.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Three-dimensional model with colorful cell structures and raised-relief organelles. Features: nucleus, nucleolus, nuclear pore, nucleoplasm, nuclear envelope, smooth endoplasmic reticulum, rough endoplasmic reticulum, mitochondrion, ribosome, Golgi apparatus, centriole, lysosome, peroxisome, cytoplasm, cell membrane and chromatin Dimensions (minimum): 304 mm L x 393 mm H x 113 mm W Made of non-toxic plastic material (Certificate of non-toxicity is required) Mounted on two post stand with stable base. The model is washable, free from any label, sharp parts and defects. Paint shall be permanent and not be removed when washed with soap and water. With name of the model: ANIMAL CELL MODEL (Font style: Arial, Font size: 40, UPPERCASE, BOLD) permanently marked on the base. Safely packed in a box Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts. Key card details: <ol style="list-style-type: none"> A4 size copy paper Margin of 1/2 inch on all sides; with 2 pt width border line Layout orientation: Landscape Lamination thickness: minimum 0.30 mm Title: ANIMAL CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD). The model picture in white background shall be big enough to occupy the center part of the card. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. Must be branded and brand new. The brand shall be permanently marked on the base. 		
	2	Model, Animal Meiosis	<p>Functional Specifications: Used to visualize the different phases of animal meiosis.</p> <p>Performance Specifications: Must be able to make a comparison between meiosis and mitosis phases and their role in the cell-division cycle.</p>		

			<p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Three-dimensional relief model made of non-toxic plastic material (Certificate of non-toxicity is required) 2. A set depicting 10 phases of meiosis namely: <ol style="list-style-type: none"> a) Interphase (G1-phase), b) Prophase I (leptotene), c) Prophase I (Zygotene and pachytene), d) Prophase I (diplotene), e) Prophase I (diakinesis), f) Metaphase I g) Anaphase I, h) Telophase I, Cytokinesis I, Interkinesis, Prophase II, and Metaphase II, j) Anaphase II, i) Telophase II and Cytokinesis II 3. Labels of the phases must bear the correct spelling as stated above 4. Shows the nucleus, centrioles, centrosome, chromatin, chromosomes, spindle fiber and aster; 5. The color of the cell models shall be in accordance with the coloring methods of microscopy; 6. Individual cell model is magnetic and detachable; 7. Each model rests in a magnetic board/frame; 8. Magnets shall not separate from the cell model; 9. Cell models must not fall when the frame is vertically mounted 10. Product measures (± 1 mm LxTxW): 600 mm long x 60 mm thick x 400 mm wide; 11. With a stable 45° metal stand 12. With name of the model: ANIMAL MEIOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the board/frame. 13. Safely packed in a box 14. With English User's manual that includes the description in each phase of meiosis and storage instructions. 15. Manual details: <ol style="list-style-type: none"> a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm) b. Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (minimum): 10 e. Pictures shall be in full color 16. Must be branded and brand new. The brand shall be permanently marked on the board/frame. 		
3	Model, Animal Mitosis		<p>Functional Specifications: Used to visualize the different phases of animal mitosis.</p> <p>Performance Specifications: Must be able to make a comparison between meiosis and mitosis phases and their role in the cell-division cycle.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Three-dimensional relief model made of non-toxic plastic material (Certificate of non-toxicity is required) 2. A set depicting 9 phases of mitosis namely: <ol style="list-style-type: none"> a) Interphase, b) Prophase, c) Early Prometaphase, d) Late Prometaphase, e) Metaphase, f) Early Anaphase g) Late Anaphase, h) Telophase i) Cytokinesis 3. Labels of the phases must bear the correct spelling as stated above 4. Shows the nucleus, centrioles, centrosome, chromatin, chromosomes, spindle fiber and aster; 5. The color of the cell models shall be in accordance with the coloring methods of microscopy; 6. Individual cell model magnetic and detachable; 7. Each model rests in a magnetic board/frame; 8. Magnets shall not separate from the cell model; 		

		<p>9. Cell models must not fall when the frame is vertically mounted</p> <p>10. Product measures (\pm 1mm L x T x W): 600 mm long x 60 mm thick x 400 mm wide;</p> <p>11. With a stable 45° metal stand</p> <p>12. With name of the model: ANIMAL MITOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the board/frame.</p> <p>13. Safely packed in a box</p> <p>14. With English User's manual that includes the description in each phase of meiosis and storage instructions.</p> <p>15. Manual details:</p> <p>a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm)</p> <p>b. Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread</p> <p>c. Binding: Saddle Staple</p> <p>d. Font type: Arial and Font size (minimum): 10</p> <p>e. Pictures shall be in full color</p> <p>16. Must be branded and brand new. The brand shall be permanently marked on the board/frame.</p>		
4	Model, Chloroplast	<p>Functional Specifications: Used to show the complex internal structure of a chloroplast.</p> <p>Performance Specifications: Must be able to illustrate parts and the organelles involved in photosynthesis.</p> <p>Design Specifications:</p> <p>1. Colored 3D model with cut-away section to reveal internal structure.</p> <p>2. Made of non-toxic plastic material (Certificate of non-toxicity is required)</p> <p>3. Features: ribosome, DNA, starch granule, outer membrane, inner membrane, stroma, thylakoid, granum, lamellae, and lumen.</p> <p>4. The model is washable, free from any label, sharp parts and defects.</p> <p>5. Paints shall be permanent and not be removed when washed with soap and water</p> <p>6. With name of the model: CHLOROPLAST MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base.</p> <p>7. Mounted on two posts stand with a stable base.</p> <p>8. Dimensions (minimum): 20 cm H x 25 cm L x 23 cm W</p> <p>9. Safely packed in a box.</p> <p>10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.</p> <p>11. Key card details:</p> <p>a. A4 size copy paper</p> <p>b. Margin of 1/2 inch on all sides; with 2 pt width border line</p> <p>c. Layout Orientation: Landscape</p> <p>d. Lamination thickness: minimum 0.30 mm</p> <p>e. Title: CHLOROPLAST MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 36, UPPERCASE, BOLD).</p> <p>f. The model picture in white background shall be big enough to occupy the center part of the card.</p> <p>g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).</p> <p>h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.</p> <p>12. Must be branded and brand new. The brand shall be permanently marked on the base.</p>		
5	Model, DNA	<p>Functional Specifications: Used as a visual representation of the different components of a DNA structure.</p> <p>Performance Specifications: Must be able to illustrate accurately the phosphate, deoxyribose, and base pairs components of a DNA structure.</p> <p>Design Specifications:</p> <p>1. Depicts a minimum of 16 base pair section/layer DNA</p> <p>2. Pre-assembled DNA made of attractive, color-coded, non-toxic, abstract shaped plastic parts that represents each bases</p>		

		<p>(Thymine, Adenine, Guanine & Cytosine), the sugar and phosphate components; (Certificate of non-toxicity is required)</p> <p>3. Stands upright with a support rod mounted on a stable rotatable base/stand</p> <p>4. Minimum model height : 58 cm</p> <p>5. The phosphate and deoxyribose can be removed and separated along with individual base pairs</p> <p>6. Double helix structure</p> <p>7. The model can also be uncoiled and ""unzipped"" to produce two strands.</p> <p>8. Must be free from sharp parts and defects</p> <p>9. With name of the model: DNA MODEL (Font style: Arial, Font size: 24, UPPERCASE, BOLD) permanently marked on the base.</p> <p>10. Safely packed in a box</p> <p>11. With English User's manual that includes description of the product, its parts, assembly and storage instructions</p> <p>12. Manual details:</p> <p>a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm)</p> <p>b. Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread</p> <p>c. Binding: Saddle Staple</p> <p>d. Font type: Arial and Font size (minimum): 10</p> <p>e. Pictures shall be in full color</p> <p>13. Must be branded and brand new. The brand shall be <u>permanently marked on the base.</u></p>		
6	Model, Invertebrates	<p>Functional Specifications: Used to provide information on the anatomy of invertebrate animals.</p> <p>Performance Specifications: Must be able to show the major parts of the invertebrate animals.</p> <p>Design Specifications:</p> <p>1. No sharp parts, non-toxic, true-to-life color, 3D replicas of invertebrates (Certificate of non-toxicity is required)</p> <p>2. With life-like shapes</p> <p>3. The models are washable and must be free from any labels.</p> <p>4. Paint shall be permanent and not be removed when washed with soap and water.</p> <p>5. Each is packed in resealable plastic bag</p> <p>6. Invertebrate models:</p> <p>a. Soft rubber Centipede - Length (minimum): 12 cm</p> <p>b. Plastic Scorpion - Length (minimum): 15 cm</p> <p>c. Plastic Crayfish or Shrimp - Length (minimum): 12 cm</p> <p>7. Each invertebrate model comes with a plastic laminated key card that shall contain the actual-colored picture of the model labeled with the required parts</p> <p>8. Key card details:</p> <p>a. A4 size copy paper</p> <p>b. Margin of 1/2 inch on all sides; with 2 pt width border line</p> <p>c. Layout Orientation: Landscape</p> <p>d. Lamination thickness: minimum 0.30mm</p> <p>e. Titles of the key card as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD)</p> <p>e.1 INVERTEBRATE: CENTIPEDE MODEL KEY CARD Features: Tail-like rear pair of legs, segmented trunk, many legs, head, eye, antennae and maxilliped with poison fang</p> <p>e.2 INVERTEBRATE: CRAYFISH or SHRIMP MODEL KEY CARD CRAYFISH features: Eye, antennae, rostrum, carapace, cheliped, abdomen, swimming legs, walking legs, telson, tail SHRIMP features: Eye, antennae, rostrum, carapace, abdomen, swimming legs, walking legs, telson, tail</p> <p>e.3 INVERTEBRATE: SCORPION MODEL KEY CARD Features: Pedipalp (pincer), eyes, legs, carapace, chelicerae, anus, telson, stinger</p> <p>f. The model picture in white background shall be big enough to occupy the center part of the card.</p> <p>g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized)</p> <p>h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled</p> <p>9. Must be brand new.</p>		
7	Model, Mitochondrion	<p>Functional Specifications: Used as a visual representation of the working organelles that keep the cell in full energy.</p>		

		<p>Performance Specifications: Must be able to visually represent the structure of mitochondrion as the main organelle involved in respiration.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. One-piece 3D model made of non-toxic plastic material (Certificate of non-toxicity is required) 2. Features: Inner membrane, outer membrane, cristae, matrix, intermembrane space, DNA, ribosome and granule 3. Shall be in cross-section longitudinal structure 4. The model is washable, free from any label, sharp parts and defects. 5. Paint shall be permanent and not be removed when washed with soap and water. 6. With name of the model: MITOCHONDRION MODEL (Font style: Arial, Font size: 40, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on a stable base 8. Dimensions (minimum): 40 cm L x 20 cm W x 12 cm H 9. Safely packed in a box 10. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including the name and labeled with the required parts. 11. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30 mm e. Title: MITOCHONDRION MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) f. The model picture in white background shall be big enough to occupy the center part of the card. g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized). h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. 12. Must be branded and brand new. The brand shall be permanently marked on the base 		
8	Model, Plant Cell	<p>Functional Specifications: Used as a visual representation of a plant cell.</p> <p>Performance Specifications: Must be able to illustrate structures in a plant cell.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Two-piece plant cell 3D model 2. Shape: Irregular 3. With colorful cell structures and raised-relief organelles 4. Features: cell wall, cytoplasm, ribosome, Golgi apparatus, mitochondrion, chloroplast, nucleus, nucleolus, nuclear envelope, nuclear pore, peroxisome, plasmodesma, smooth endoplasmic reticulum, rough endoplasmic reticulum and vacuole. 5. Dimensions (minimum): 195 mm L x 110 mm W x 325 mm H 6. Made of non-toxic plastic material (Certificate of non-toxicity is required) 7. The model is free from any label, sharp parts and defects. 8. Paint shall be permanent and not be removed when washed with soap and water. 9. With name of the model: PLANT CELL MODEL (Font style: Arial, Font size: 20, UPPERCASE, BOLD) permanently marked on the model itself or onto the base if the model is supplied with a base. 10. Safely packed in a box 11. Comes with a plastic laminated key card that shall contain the actual-colored picture of the model including name and labeled with the required parts. 12. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30mm e. Title: PLANT CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 34, UPPERCASE, BOLD) 		

		<p>f. The model picture in white background shall be big enough to occupy the center part of the card.</p> <p>g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).</p> <p>h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled</p> <p>13. Must be branded and brand new. The brand shall be permanently marked on the item or base whenever applicable.</p>		
9	Model, Vertebrates	<p>Functional Specifications: Used to provide information on the anatomy of vertebrate animals.</p> <p>Performance Specifications: Must be able to show the major parts of the vertebrate animals.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. No sharp parts, non-toxic, true-to-life color, 3D replicas of vertebrates (Certificate of non-toxicity is required) 2. With life-like shapes 3. The models are washable and must be free from any labels. 4. Paint shall be permanent and not be removed when washed with soap and water. 5. Each is packed in a resealable plastic bag. 6. Vertebrate models: <ol style="list-style-type: none"> a. Soft rubber SNAKE - Length (minimum): 50 cm. b. Plastic balancing eagle with transparent pyramid tower Eagle (± 0.2 cm): 13 cm L x 10 cm W x 2 cm H Tower (± 0.2 cm): 4 cm L x 4 cm W x 5 cm H c. Plastic Shark - Length (minimum): 15 cm 7. Each vertebrate model comes with a plastic laminated key card that shall contain the actual-colored picture of the model and labeled with the required parts. 8. Key card details: <ol style="list-style-type: none"> a. A4 size copy paper b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Lamination thickness: minimum 0.30mm e. Titles of key cards as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) <ol style="list-style-type: none"> e.1 VERTEBRATE: SHARK MODEL KEY CARD Features: Snout, eye, mouth, nostril, gill slit, first dorsal fin, second dorsal fin, pectoral fin, pelvic fin, and caudal fin e.2 VERTEBRATE: BIRD MODEL KEY CARD Features: Head, feather, tail, body, beak, eye, and wing e.3 VERTEBRATE: SNAKE MODEL KEY CARD Features: Head, eye, mouth, tongue, body, scales, and tail f. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized). h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. 9. Must be brand new 		
10	Protein Synthesis Demonstration Set	<p>Functional Specifications: Used to demonstrate the synthesis of protein.</p> <p>Performance Specifications: Must be able to illustrate the synthesis of protein using information from DNA.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Contains 33 pieces of reusable, non-toxic plastic (certificate of non-toxicity is required), magnetic, and colorful teacher manipulatives (large DNA, mRNA, ribosome, tRNA, and amino acid models) 2. A 3' -5' DNA sense strand and a linear 5'-3' DNA anti-sense strand 3. With 180 student manipulatives (smaller size models) where students can manipulate on their tables 4. With teachers key for easy verification 5. With instructional video on the use in USB 6. Safely packed in a box 7. With English User's manual that shall provide assessment questions in the identification of a resulting amino acid sequence from a unique DNA sequence. 8. Manual details: 		

			<p>a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm) Cover: Paper board, 280 gsm (minimum 0.30 mm)</p> <p>b. Size (minimum): 165 mm x 215 mm Fold (minimum): 330 mm x 215 mm Spread</p> <p>c. Binding: Saddle Staple</p> <p>d. Font type: Arial and Font size (minimum): 10</p> <p>e. Pictures shall be in full color</p> <p>9. Packing dimensions (minimum): 72 cm L x 34 cm W x 9 cm T</p> <p>10. Must be branded and brand new. The brand shall be printed on the box.</p>		
MODELS: MOLECULAR GEOMETRY					
13	1	Model, Atomic Orbital Kit	<p>Functional Specifications: Used as a model/visual three dimensional (3D) representation of the shapes of the 14 different atomic orbitals</p> <p>Performance Specifications: A) Must be able to a) represent visually the 14 different atomic orbitals b) assemble/build the 14 atomic orbitals (basic s, p and d atomic orbitals)</p> <p>i) one (1) pc 1s-orbital, unhybridized ii) one (1) pc 2s-orbital, unhybridized iii) three (3) pc 2p-orbital unhybridized iv) five (5) 3d-orbital- unhybridized v) one unit with one 2s plus three 2p- orbitals as well vi) as one sp hybrid orbital vii) one (1) pc sp hybridized viii) one (1) pc sp² hybridized ix) one (1) pc sp³ hybridized.</p> <p>Design Specifications:</p> <p>1. The pink & purple pear-shaped lobes to represent the 2-wave (positive and negative) phases of the s, p & d atomic orbitals. The pink and purple, pear-shaped lobes represent the phase Material : Plastic</p> <p>2. Opaque white spheres represent atomic nuclei. Material : Plastic</p> <p>3. With 14 easy-to-assemble atomic orbitals ((basic s, p and d atomic orbitals) a) 1 pc - 1s, Unhybridized b) 1 pc - 2s, Unhybridized c) 3 pc - 2p, Unhybridized d) 5 pc - 3d, Unhybridized e) 1 pc with one 2s plus three 2p orbitals, Unhybridized f) 1 pc sp, hybrid orbital, Hybridized g) 1 pc sp² hybrid orbital, Hybridized h) 1 pc sp³ hybrid orbital, Hybridized</p> <p>4. Approximate model heights including clear, colorless base range from 50–90 mm. a) 50 mm (s orbital), b) 90 mm (p orbital), and c) 80 mm (d orbital).</p> <p>5. The set is composed of the following: a) 9 pc Grey atomic orbital parts b) 17 pc Purple atomic orbital parts c) 19 pc Pink atomic orbital parts d) 2 pc White octahedral atom parts e) 1 pc Black octahedral 23-24 mm carbon atom part f) 1 pc Pink monovalent 17-18 mm atom part g) 1 pc Pink monovalent 23-24 mm atom part h) 1 pc Purple d atomic disc-shaped orbital part i) 1 pc Black tetrahedral 23-24 mm carbon atom part j) 1 pc Black trigonal bipyramidal 23-24 mm carbon atom part k) 1 pc Pink octahedral 23-24 mm atom part l) (1) Hydrogen H- Bond 17-18 mm atom part m) 2 pc White 3-hole 17-18 mm atom parts n) 2 pc White 7-hole atom parts o) 8 pc Grey rigid 27-28 mm bonds p) 14 pc clear transparent Pedestal Stand/ bases</p> <p>6. With durable storage case with four compartments for segregation of parts a) Material of storage box: ABS plastic b) Color: Grey</p>		

			<p>c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the compartmentalized storage box, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>7. For Contents/ List of materials, In Table form</p> <p>a) For atoms: quantity, name of element(symbol), color code, (number of holes, type of bond angles), diameter of the sphere</p> <p>b) For links; bond types and use</p> <p>8. With assembly guides, individual worksheets and instructional sheets/leaflets in English</p> <p>9. With User's Manual/Teacher's manual in English with full background information</p> <p>10. For numbers #8-9, the technical specifications (a- e) must be followed:</p> <p>a) For Contents/ List of materials, In Table form</p> <p>b) for User's Manual, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences, grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>i) Paper Size : A4 size , 80 gsm</p> <p>e) in 0.3 mm minimum thickness plastic laminated User's Manual/Teacher's Manual/Assembly Guides/ instructional leaflets that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:</p> <p>ii) Font : Times New Roman</p> <p>iii) Font size : 12</p> <p>iv) Margins on all sides with 2 point width border line</p> <p>v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p> <p>11. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein.</p> <p>12. Comes with a brand marked permanently in the box</p> <p>13. Must be brand new</p>		
2		<p>Model, Biochemistry Molecular, (262 atom parts and 260 links)</p>	<p>Functional Specifications: Used as a model/visual 3D representation of some biomolecules: proteins, nucleic acids, lipids, and carbohydrates, their structures</p> <p>Performance Specifications:</p> <p>A) Must be able to visually</p> <p>a) represent some biomolecules proteins, nucleic acids, lipids, and carbohydrates, their structures, and relate them to their function.</p> <p>b) observe the chemical bonding</p> <p>c) determine whether the biomolecule is polar or non polar given its structure</p> <p>B) Assemble all the different biomolecules and study them</p> <p>Design Specifications:</p> <p>1. Type : Compact/Semi-space filling models</p> <p>2. Shape of atom parts : Solid spheres</p> <p>3. Material of spheres : Plastic</p> <p>4. Diameter of sphere/atom</p> <p>a) Hydrogen atom : 17-17.5 mm</p> <p>b) Carbon, nitrogen and oxygen atom: 23-23.5 mm</p> <p>5. For compact models, bonds are represented by</p> <p>a) short links</p> <p>b) v-bonds links</p> <p>6. Material of links : Plastic</p> <p>7. Length of links</p> <p>a) short link : 2 mm-11 mm</p> <p>b)v-bonds links : 13-14 mm</p> <p>8. Color of links:</p> <p>a) short link : white/translucent</p> <p>b) v-bonds link : white links</p>		

9. With 262 color-coded plastic atoms and 260 links
 10. The Biochemistry Molecular Model set includes the following:
 A. 262 color-coded plastic atom parts

Quantity (pc)	Element	Color	No. of Holes	Shape
i) 68 Black Carbon atoms				
42 pc	Carbon	Black	4 holes	Tetrahedral
24 pc	Carbon	Black	3 holes	Trigonal
2 pc	Carbon	Black	2 holes	Linear
ii) 34 Blue nitrogen atoms				
12 pc	Nitrogen	Blue	4 holes	Tetrahedral
12 pc	Nitrogen	Blue	3 holes	Trigonal
10 pc	Nitrogen	Blue	2 holes	Angular
iii) 40 red oxygen atoms				
20 pc	Oxygen	Red	2 holes	Angular
10 pc	Oxygen	Red	2 holes	Linear
10 pc	Oxygen	Red	single hole	
iv) 110 White Hydrogen atom parts				
100 pc	White molydome links			
10 pc	Hydrogen	White	2 holes	Linear
v) Two (2) Yellow two hole angular sulfur atoms				
2 pc	Sulfur	Yellow	2 holes	Angular
vi) Six (6) purple tetrahedral atoms				
6 pc	Phosphorus	Purple	4 holes	Tetrahedral
vii) 2 grey metal atoms				
One (1) pc	Metal	Grey	4 holes	Tetrahedral
One (1) pc	Metal	Grey	6 holes	Octahedral
viii) 150 NV-links, colorless				
ix) 100 Short white links				
x) 10 V-links, grey				

- C. With two pc link remover tool
 Color : cream

11. With two durable large storage boxes
 a) Material of storage boxes: ABS plastic
 b) Color: Grey
 c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the two large storage boxes, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier, with the following dimensions:
 Length : 238-239 mm
 Width : 167-169 mm
 Thickness : 6.0-9.0 mm
12. With contents/ list of materials in table form, as to:
 a) For atoms: quantity, name of element(symbol), color code, (number of holes, type of bond angles), diameter of the sphere
 b) For links; bond types and use
13. With Assembly Guides, individual worksheets and instructional leaflets in English
14. With User's Manual/Teacher's instruction manual in English with full background information
15. For numbers #13 to 14; technical specifications(a-e) must be followed:
 a) For Contents List of materials, In Table form
 b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format
 i) With sentences grammatically correct and
 ii) With correct spelling and terminologies, punctuations and others
 c) In original print, not photocopied
 d) In colored pictures, drawings/illustrations
 e) in 0.3 mm minimum thickness plastic laminated Assembly guides/instructional leaflets that shall contain the actual colored picture of the model including the name labeled with the required parts with details as follows:
 i) Paper Size : A4 size , 80 gsm
 ii) Font : Times New Roman
 iii) Font size : 12
 iv) Margins on all sides with 2 point width border line
 v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled

		<p>16. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein</p> <p>17. Must be have a brand printed permanently on the box</p> <p>18. Must be brand new</p>																																																										
3	Model, Crystal Structures Set (Graphite, diamond, sodium chloride, carbon dioxide)	<p>Functional Specifications: Used as a model/ visual 3D representation of five crystal compounds</p> <p>Performance Specifications: A) Must be able to visually:</p> <p>a) represent the five different types of crystals and their properties: ionic, covalent, molecular, and metallic</p> <p>b) describe the difference in structure of crystalline (diamond) and amorphous (graphite) solids and</p> <p>d) observe the difference of the ionic, covalent and metallic bonds and</p> <p>e) determine whether a crystal molecule is polar or non polar given its structure</p> <p>B) Assemble the four crystal structures</p> <p>Design Specifications:</p> <p>1. Type : Open/Ball and stick</p> <p>2 Shape of atom parts :Solid spheres</p> <p>3 Material of spheres : Plastic with the following dimensions:</p> <p>a)Sodium, carbon: 23-23.5 mm</p> <p>b) Copper : 25-25.5 mm</p> <p>c) Chlorine : 32-32.5 mm</p> <p>4. Types of links/bonds</p> <p>a) Medium (Single, rigid) links</p> <p>b) Long (double/triple, flexible) links</p> <p>5. Material of links: Flexible plastic low density plastic</p> <p>6. Length of solid links/rods</p> <p>a)Medium: 19-27 mm</p> <p>b) Long : 43-44 mm</p> <p>7. Color of links/bonds</p> <p>Medium links: grey white/purple</p> <p>Long links : gray</p> <p>8. The Crystal structure set is composed of the following:</p> <p>a) Diamond- covalent crystal model (30 atoms) + links = 70 pc</p> <p>I.</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Number of Holes</th> <th>Angle</th> <th>Shape</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Carbon</td> <td>4 hole</td> <td>109.5°</td> <td>Tetrahedral</td> <td>Black</td> <td>30</td> </tr> </tbody> </table> <p>ii) Placed in resealable plastic bag</p> <p>II.</p> <table border="1"> <thead> <tr> <th>Links/Bonds</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Medium Links/Bonds</td> <td>Grey White</td> <td>40</td> </tr> </tbody> </table> <p>ii) Placed in resealable Plastic bag</p> <p>b) Sodium chloride (NaCl)-i/onic crystal model (27 atoms)+links= 81 pc</p> <p>I.</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Number of Holes</th> <th>Shape</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Chlorine</td> <td>6 hole</td> <td>Octahedral</td> <td>Green</td> <td>13</td> </tr> <tr> <td>ii) Sodium</td> <td>6 hole</td> <td>Octahedral</td> <td>Silver gray/grey</td> <td>14</td> </tr> </tbody> </table> <p>iii) Placed in two (2) separate resealable plastic bags</p> <p>II.</p> <table border="1"> <thead> <tr> <th>Links/Bonds</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Medium</td> <td>Grey white</td> <td>54</td> </tr> </tbody> </table> <p>ii) Placed in resealable plastic bag</p> <p>c) Graphite - covalent crystal model (45 atoms) + links = 100 pc</p> <p>This kit is designed to make a three layer model of graphite having 15 carbon atoms in each layer.</p> <p>I.</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Number of holes</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Carbon</td> <td>5 hole</td> <td>Black</td> <td>39</td> </tr> </tbody> </table> <p>ii) Placed in resealable plastic bag</p> <p>II.</p> <table border="1"> <thead> <tr> <th>Links/Bonds</th> <th>Color</th> <th>Quantity (pc)</th> </tr> </thead> <tbody> <tr> <td>i) Long connectors</td> <td>Grey/ white</td> <td>15</td> </tr> <tr> <td>ii) Medium connectors (single, rigid)</td> <td>Grey/ white</td> <td>46</td> </tr> </tbody> </table> <p>iii) Placed in two (2) separate resealable plastic bag</p> <p>d) Copper - metallic crystal model/ 14 atoms + links = 50 pc</p> <p>Crystal structure : face center cubic</p>	Element	Number of Holes	Angle	Shape	Color	Quantity (pc)	i) Carbon	4 hole	109.5°	Tetrahedral	Black	30	Links/Bonds	Color	Quantity (pc)	i) Medium Links/Bonds	Grey White	40	Element	Number of Holes	Shape	Color	Quantity (pc)	i) Chlorine	6 hole	Octahedral	Green	13	ii) Sodium	6 hole	Octahedral	Silver gray/grey	14	Links/Bonds	Color	Quantity (pc)	i) Medium	Grey white	54	Element	Number of holes	Color	Quantity (pc)	i) Carbon	5 hole	Black	39	Links/Bonds	Color	Quantity (pc)	i) Long connectors	Grey/ white	15	ii) Medium connectors (single, rigid)	Grey/ white	46		
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I.

Element	Number of holes	Color	Quantity (pc)
i) Copper	8 hole	Red	8
ii) Copper	6 hole	Red	6
iii) Placed in two (2) separate Ziploc plastic bag			

II. Links/Bonds - 36 pc

Links/Bonds	Color	Length	Quantity (pc)
i) Medium	Grey white	65 mm	24
ii) Long	Grey white	100 mm	12
iii) Placed in two (2) separate resealable plastic bag			

9. With Link remover tool/Assembly tool
 10. With 1 pc durable plastic storage box
 a) Material: ABS plastic
 b) Color: Grey
 c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the compartmentalized storage box, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier, with the following dimensions:
 11. Package Dimensions
 a) Length : 235-239 mm
 b) Width : 167-171 mm
 c) Thickness : 68-71 mm
 12. With contents/ list in table form, as to:
 a) For atoms: quantity, name of element(symbol), color code, (number of holes, type of bond angles), diameter of the sphere
 b) For links; bond types and use
 13. With Assembly Guides, individual worksheets and instructional leaflets in English
 14. With User's Manual/Teacher's instruction manual in English with full background information
 15. For numbers #12 to 14; they must follow technical specifications a-e:
 a) For Contents List of materials, In Table form
 b) for User's Manual, Instruction Sheets/Assembly Guides, In sentences
 format
 i) With sentences grammatically correct and
 ii) With correct spelling and terminologies, punctuations and others
 c) In original print, not photocopied
 d) In colored pictures, drawings/illustrations
 e) in 0.3 minimum thickness plastic laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows:
 i) Paper Size : A4 size , 80 gsm
 ii) Font : Times New Roman
 iii) Font size : 12
 iv) Margins on all sides with 2 point width border line
 v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled.
 16. Must be free from breakage, cracks , chipped rims, sharp edges, all surface irregularities and all other defects not stated herein
 17. Comes with a brand marked permanently in the box
 18. Must be brand new

Model, Molecular, Inorganic/Organic (307-pc)

4

Functional Specifications: Used as a model/visual three dimensional (3D) representation of the different inorganic/organic compounds

Performance Specifications: Must be able to :
 a) visually represent the molecular structures of many inorganic/organic molecules and
 b) assemble inorganic/organic compounds to show covalent and ionic bonding and c) determine whether a molecule is polar or non polar given its structure

Design Specifications:

1. Type : Ball and stick
2. Shape of atom parts : Solid spheres
3. Material of spheres : Plastic
4. Diameter of sphere/atom
 - a) Hydrogen and chlorine atoms : 17-17.5 mm
 - b) Other atoms : 23-23.5 mm
5. Material of links: Flexible plastic low density polyethylene (LDPE) solid links
6. Length, color and quantity of solid links/rods
 - a) Short links
 - i) Type : For space filling
 - ii) Length : 11-12 mm
 - iii) Color : Translucent/white
 - iv) Quantity: 60 pc
 - b) Medium links
 - i) Type : Single, rigid
 - ii) Length : 27-28 mm
 - iii) Color : Grey
 - iv) Quantity: 60 pc
 - c) Long links
 - i) Type : Double/triple/flexible
 - ii) Length : 43-44 mm
 - iii) Color : Grey
 - iv) Quantity : 30 pc
7. With 126 atoms, 30 orbitals, 150 links and 1 short link remover tool
8. The inorganic/organic molecular model set is composed of the following:

I.

Shape	No. of Holes	Angles	Element/atom	Color	Quantity (pc)
a) Tetrahedral	4 holes	109°28'	Carbon	Black	30
b) Trigonal	5 holes	90°/120°	Carbon	Black	8
c) Linear	2 holes	180°	Carbon	Black	2
d) Trigonal bipyramidal	3 holes	120°	Carbon	Black	6
e) Divalent	2 holes	105°	Oxygen	Red	14
f) Monovalent	1 hole		Hydrogen	White	45
g) Tetrahedral	4 holes	109°28'	Nitrogen	Blue	4
h) Divalent	2 holes	105°	Sulfur	Yellow	1
i) Tetrahedral	4 holes	109°28'	Sulfur	Yellow	1
j) Tetrahedral	4 holes	109°28'	Phosphorus	Purple	4
k) Monovalent	1 hole	180°	Chlorine	Green	8
l) Octahedral	6 holes	90°	Metal	Silver/grey	2
m) Divalent atom				Grey	1

II. Orbitals: 30 pc

Orbitals	Lengths	Color	Quantity (pc)
a) Pi orbitals	38 mm	purple	6
b) Pi orbitals	38 mm	pink	6
c) P orbitals	38 mm	purple	6
d) P orbitals	38 mm	pink	6
e) P orbitals	38 mm	beige	6

III. Links (represented the bonds): 150 link

Material of bonds/links : Rigid, non-toxic Flexible plastic (LDPE)

Links	Type/Kind of bonds	Length	Color	Quantity (pc)
a. Medium Links	(single, rigid)	27mm	Grey	60
b. Long Links	double/triple/flexible	43mm	Grey	30
c. Short Links	For space filling	11mm	Translucent/white	60

9. One (1) pc Link remover tool/Assembly tool

10. With durable storage box

- a) Material of storage box: ABS plastic
- b) Color: Grey

c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the compartmentalized storage box, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material to the technical specifications. A representative of the

			<p>Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier, with the following dimensions:</p> <ul style="list-style-type: none"> a) Length : 238-239 mm b) Width : 167-168 mm c) Thickness : 68-70 mm <p>11. With contents/ list of materials, in table form, as :</p> <ul style="list-style-type: none"> a) For atoms: quantity, name of element(symbol), color code, (number of holes, type of bond angles), diameter of the sphere b) For links; bond types and <p>12. With Assembly guides, Individual Worksheets and Instructional leaflets</p> <p>13. With User's Manual/Teacher's Manual in English with full background information</p> <p>14. For numbers #12 to 13; technical specifications (a-e) must be strictly followed:</p> <ul style="list-style-type: none"> a) For Contents/ List of materials, In Table form b) For User's Manual, Instruction Sheets/Assembly Guides, In sentences format <ul style="list-style-type: none"> i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c) In original print, not photocopied d) With colored pictures, drawings/illustrations e) in 0.3 mm minimum thickness plastic laminated that shall contain the actual-colored picture of the model including the name labeled with the required parts with details as follows: <ul style="list-style-type: none"> i) Paper Size: A4 size, 80 gsm ii) Font: Times New Roman iii) Font size: 12 iv) Margins on all sides with 2-point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being labeled" <p>15. Comes with a brand marked permanently on the box</p> <p>16. Must be brand new</p>		
5		<p>Model, Sublevel Orbitals of the Atom (Quantum)</p>	<p>Functional Specifications: Used as a visual representation of the spatial three-dimensional (3D) model of the shapes of the orbitals (azimuthal quantum number) of the sublevels of the major energy levels of the first ten elements of the Periodic Table</p> <p>Performance Specifications: Must be able to:</p> <p>A) visually represent the spatial three-dimensional (3D) model of the shapes of the orbitals to describe the quantum mechanical model (azimuthal quantum model) of the first ten elements in the Periodic Table</p> <ul style="list-style-type: none"> a) two (2) p orbitals <ul style="list-style-type: none"> i) 1s-orbital and ii) 2s-orbital, b) the three (3) p orbitals <ul style="list-style-type: none"> i) 2p_x-orbital ii) 2p_y-orbital, and iii) 2p_z-orbital c) the position and number of electrons along the x, y and z axis d) the orbitals of the sublevels of the major energy levels <p>B) Assemble the sublevel orbital of the first ten elements of the Periodic Table based on the electronic configuration of each, to review on the four (4) quantum numbers and rules in filling up the orbitals (the Aufbau Principle, Pauli's exclusion principle, and Hund's rule), to study and learn the correct position and number of electrons along the x, y and z axis, as well as the orbitals of the sublevels of the major energy levels</p> <p>Design Specifications:</p> <ul style="list-style-type: none"> 1. With 12 Models of the Sublevel orbitals of the atom 2. With color-coded components which include the following: 3. ORBITALS 		

			<p>a) 1s-orbitals (K shell) Shape of 1s orbital: small sphere Material: Plastic Color: Blue Quantity: 12 pc</p> <p>b) 2s-orbitals (L shell) Shape of 2s orbital: Large sphere Material: Plastic Color: Orange Quantity: 12 pc</p> <p>c) p-orbitals (M shell)</p> <p>i) p_x -orbitals Shape of orbital: Pear shaped lobes Material: Plastic Color: Red Quantity: 24 pc</p> <p>ii) p_y -orbitals Shape of orbital: Pear shaped lobes Material: Plastic Color: Yellow Quantity: 24 pc</p> <p>iii) p_z -orbital Shape of orbital: Pear shaped lobes Material: Plastic Color: Green Quantity: 24 pc</p> <p>d) Bases Shape: Spherical Material: Plastic Color: White Quantity: 12 pc</p> <p>e) Crossbars (x and z axes) Shape: Cross-shaped Material: Durable non-toxic plastic Color: White Quantity: 12 pc</p> <p>f) Electrons Shape: Small circular cutouts in a plastic sheet Material: Plastic Color: Black Quantity: 1 whole plastic sheet with cut out 128 pc electrons</p> <p>g) Uprights (y axes) Shape: Long, cylindrical sticks Material: Plastic Color: Cream Quantity: 12 pc</p> <p>4. Individually packed per item as segregated above in separate resealable plastic bags</p> <p>5. With durable plastic storage box</p> <p>a) Material: ABS plastic b) Color: Grey</p> <p>c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the storage box, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier.</p> <p>6. With List of Contents in the set</p> <p>7 With Teacher's Guide</p> <p>8. With 30 Student Worksheets and Guides, Part I and Part II</p> <p>9. With quantum numbers chart provided on each student worksheet to help students assemble the models starting with the 1s orbitals.</p> <p>10. Detailed instructions provided.</p> <p>11. For numbers 6-10, the following technical specifications from (a-e) must be followed:</p> <p>a) For Contents/ List of materials, In Table form b) For User's Manual, Teacher's Guide, Student Worksheets, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences grammatically correct and</p>		
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		<p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual-colored picture of the model including the name: labeled with the required parts with details as follows:</p> <p>i) Paper Size: A4 size, 80 gsm</p> <p>ii) Font: Times New Roman</p> <p>iii) Font size: 12</p> <p>iv) Orientation: Portrait</p> <p>v) Margins on all sides with 2-point width border line</p> <p>vi) Line with arrow head of 1.25 point with width shall point to the specific part being labeled</p> <p>12. Must be free from breakage, cracks, chipped rims, sharp edges, all surface irregularities and all other defects not stated herein</p> <p>13. Comes with a brand marked permanently on the box</p> <p>14. Must be brand new</p>																																																																				
6	Model, VSEPR, 14 shapes (50-pc)	<p>Functional Specifications: a) Used as a visual 3D representation of the 14 different shapes of simple molecules with corresponding angles to perform exercises on VSEPR theory using models</p> <p>b) describe the geometry of simple compounds</p> <p>Performance Specifications:</p> <p>A) Must be able to visually:</p> <p>a) represent all the 14 different shapes of simple molecules with corresponding angles to perform exercises on VSEPR theory</p> <p>b) describe the geometry of simple compounds</p> <p>B) Assemble the 14 different shapes of VSEPR Models and study them</p> <p>Design Specifications:</p> <p>1. Type: Ball and stick</p> <p>2. Shape of atom parts: Solid spheres</p> <p>3. Material of spheres: Plastic</p> <p>4. Diameter of sphere/atom</p> <p>a) Hydrogen, halogen, and metal sphere/atom: -17-17.5 mm</p> <p>b) Other atoms: 23-23.5 mm</p> <p>5. The VSEPR Theory model set is composed of the following:</p> <p>I. With central atoms to construct 14 VSEPR shapes;</p> <table border="1"> <thead> <tr> <th>Color</th> <th>Number of Holes</th> <th>Shapes</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>metallic grey</td> <td>2 holes</td> <td>Linear</td> <td>(e.g., beryllium in BeCl₂)</td> </tr> <tr> <td>Yellow</td> <td>3 holes</td> <td>Trigonal</td> <td>(e.g., sulfur in SO₃)</td> </tr> <tr> <td>Yellow</td> <td>3 holes</td> <td>Trigonal</td> <td>(e.g., sulfur in SO₂)</td> </tr> <tr> <td>Black</td> <td>4 holes</td> <td>Tetrahedral</td> <td>(e.g., carbon in CH₄)</td> </tr> <tr> <td>Yellow</td> <td>4 holes</td> <td>Tetrahedral</td> <td>(e.g., sulfur in SO₃ 2-)</td> </tr> <tr> <td>Red</td> <td>4 holes</td> <td>Tetrahedral</td> <td>(e.g., oxygen in H₂O)</td> </tr> <tr> <td>Light green</td> <td>4 holes</td> <td>Tetrahedral</td> <td>(e.g., fluorine in HF)</td> </tr> <tr> <td>Light brown</td> <td>5 holes</td> <td>Trigonal bipyramidal</td> <td>(e.g., phosphorus in PCl₅)</td> </tr> <tr> <td>Yellow</td> <td>5 holes</td> <td>trigonal bipyramidal</td> <td>(e.g., sulfur in SF₄)</td> </tr> <tr> <td>Green</td> <td>5 holes</td> <td>trigonal bipyramidal</td> <td>(e.g., chlorine in ClF₃)</td> </tr> <tr> <td>Purple</td> <td>5 holes</td> <td>trigonal bipyramidal</td> <td>(e.g., xenon in XeF₂)</td> </tr> <tr> <td>grey</td> <td>6 holes</td> <td>octahedral</td> <td>(e.g., metal complexes)</td> </tr> <tr> <td>Brown</td> <td>6 holes</td> <td>octahedral</td> <td>(e.g., bromine in BrF₅)</td> </tr> <tr> <td>copper</td> <td>6 holes</td> <td>octahedral</td> <td>(e.g., copper complexes)</td> </tr> </tbody> </table> <p>b. With the following links/bonds:</p> <table border="1"> <thead> <tr> <th>Quantity (pc)</th> <th>Color Link</th> <th>Bond</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Color	Number of Holes	Shapes	Example	metallic grey	2 holes	Linear	(e.g., beryllium in BeCl ₂)	Yellow	3 holes	Trigonal	(e.g., sulfur in SO ₃)	Yellow	3 holes	Trigonal	(e.g., sulfur in SO ₂)	Black	4 holes	Tetrahedral	(e.g., carbon in CH ₄)	Yellow	4 holes	Tetrahedral	(e.g., sulfur in SO ₃ 2-)	Red	4 holes	Tetrahedral	(e.g., oxygen in H ₂ O)	Light green	4 holes	Tetrahedral	(e.g., fluorine in HF)	Light brown	5 holes	Trigonal bipyramidal	(e.g., phosphorus in PCl ₅)	Yellow	5 holes	trigonal bipyramidal	(e.g., sulfur in SF ₄)	Green	5 holes	trigonal bipyramidal	(e.g., chlorine in ClF ₃)	Purple	5 holes	trigonal bipyramidal	(e.g., xenon in XeF ₂)	grey	6 holes	octahedral	(e.g., metal complexes)	Brown	6 holes	octahedral	(e.g., bromine in BrF ₅)	copper	6 holes	octahedral	(e.g., copper complexes)	Quantity (pc)	Color Link	Bond					
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50	Grey medium	Single bond
15	Purple medium	Lone pair
6	White short links	Cyanide group

6. Comes with short link remover tool
7. With durable plastic storage box
 - a) Material: ABS plastic
 - b) Color: Grey
 - c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the four compartmentalized storage box, is Acrylonitrile butadiene styrene (ABS), to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier
8. With contents/ list of materials in table form
9. With detailed assembly guides and instructional leaflets s provided.
10. With assembly guides, individual worksheets and instructional leaflets
11. With User's Manual/Teacher's instruction manual in English with full b background information.
12. For numbers #8 to 10 technical specifications (a-e) must be strictly followed:
 - a) For Contents List of materials, In Table form
 - b) for User's Manual, Instruction Sheets/Assembly Guides, In sentences format
 - i) With sentences grammatically correct and
 - ii) With correct spelling and terminologies, punctuations and others
 - c) In original print, not photocopied
 - d) In colored pictures, drawings/illustrations
 - e) in 0.3 mm minimum thickness plastic laminated keycard that shall contain the actual-colored picture of the model including the name: labeled with the required parts with details as follows:
 - i) Paper Size: A4 size, 80 gsm
 - ii) Font: Times New Roman
 - iii) Font size: 12
 - iv) Orientation: Portrait
 - v) Margins on all sides with 2-point width border line
 - vi) Line with arrow head of 1.25 point with width shall point to the specific part being labeled.
13. Must be free from breakage, cracks, chipped rims, sharp edges, all surface irregularities and all other defects not stated herein
14. Comes with a brand printed permanently onto the box
15. Must be brand new

FORCE, MOTION, AND ENERGY KITS

14	1	Advanced Electromagnetism Kit	<p>Functional Specifications: used to demonstrate the relationship between electricity and magnetism</p> <p>Performance Specifications: should be able to demonstrate the relationship between electricity and magnetism</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. The kit contains the following: <ol style="list-style-type: none"> a. 2 -Bar Magnets: 148-150 mm X 10-12 mm X 7-8 mm; magnet strength: can suspend load 2 times its weight suspended end-to-end at north or south pole of the magnet, correctly labeled and or color coded to indicate North and south poles b. 6 -Magnetic compass, 18-20 mm diameter, correct orientation of N-S poles c. 2 -U-Magnets, 5.98-6 mm X 15-16 mm cross section X 98-100 mm long, jaw opening: 48-50 mm; magnet strength: can suspend 2 times its weight suspended at north or south pole 		

		<p>of the magnet; correctly labeled and or color coded to indicate North and south poles</p> <p>d. 1 -Magnetic field mapper-8.5-9 cm X 15.5-16 cm clear transparent casing contains iron filings immersed in non mold forming viscous liquid, should clearly show magnetic lines</p> <p>e. 1 -spool magnet wire (insulation coated) #20, 500 g.</p> <p>f. 1 - steel rod 10.5-12 mm dia x 98-100 mm long</p> <p>g. 2 -copper wire solid, #14, insulated, 14.5-15 cm long each wire</p> <p>h. 3- wood blocks 23-25 mm X 73-75 mm X 98-100 mm with pilot holes that run through center of block</p> <p>2. Comes with plastic container that can accommodate the items indicated above.</p> <p>3. <u>Brand permanently marked on plastic container</u></p>		
2	Air Blower	<p>Functional Specifications: Used to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle.</p> <p>Performance Specifications: Should be able to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Electric air blower with variable speed control, volute type, 400 W motor rating, 220 to 240 VAC 60 Hz power supply, 0 to 12000 RPM 2. With English User's Manual that includes operation guide 3. With cartoon transport box 4. <u>Brand permanently marked on the item</u> 		
3	Archimedes Principle Set	<p>Functional Specifications: Used to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent loss of weight of the immersed object is equal to the weight of the displaced liquid</p> <p>Performance Specifications: Should be able to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent loss of weight of the immersed object is equal to the weight of the displaced liquid</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. The item consists of: <ul style="list-style-type: none"> a) Bucket and Plummet: Transparent bucket with handle stainless steel/brass, plummet white color with hook; <p>Capacity: 100 mL</p> <p>Compose of bucket and plummet with graduation. Permanently marked accurate divisions on plummet and bucket representing different volume levels. Divisions should be aligned when the plummet is inserted into the bucket.</p> <p>Overflow can 450 mL capacity</p> <p>Catch bucket</p> <p>spring scale 2N/200g</p> <p>Material: transparent plastic</p> <ol style="list-style-type: none"> 2. Fixations and supports should be stable during activity 3. With English Manual that includes User's Guide 4. Contained in a styropor storage box, styropor box in transport packaging 5. <u>Brand permanently marked on packaging</u> 		
4	Basic Electronics Kit	<p>Functional Specifications: Used to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts</p> <p>Performance Specifications: Should be able to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Each component is mounted on individual plastic board with color coded binding post terminals depending on mounted components (see No. 4 for color code of binding post terminals) <p>Dimensions: 58-60 mm width x 78-80 mm length x 4.5-5 mm height</p> <ol style="list-style-type: none"> 2. Component name and symbol should be permanent (embossed or etched) and painted black on conspicuous location on board. 		

		<p>3. With external binding post connectors that can accommodate 4 mm banana plugs, color coded encapsulation: black for negative, red for positive, yellow for non-polar terminals</p> <p>4. The Kit should contain the following:</p> <ol style="list-style-type: none"> 5-Resistors: (2-100 Ω, 2 watts; 1-1000 Ω, 2 watts; 1-10 kΩ, 2 watts; 1-100 kΩ, 2 watts), binding post terminals: all yellow 2-Rectifier Diodes, IN 4002, binding post terminals: black for negative, red for positive 1-LED, large size, binding post terminals: black for negative, red for positive 1-NPN transistor, 2N3440 or 2N3439 or equivalent, binding post terminals: black for negative, red for positive 2-Capacitor 1000 μF (standard), 25 V, binding post terminals: black for negative, red for positive 1-Variable Resistor, large, rotary, carbon, 5 kΩ mono, binding post terminals: all yellow <p>5. Items placed in plastic storage box, 1 box per set</p> <p>6. Brand permanently marked on the item</p>		
5	Basic Lens Set, acrylic	<p>Functional Specifications: Used to demonstrate refraction of light</p> <p>Performance Specifications: Should be able to demonstrate refraction of light</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Set of 7 lenses, acrylic material (subject to material testing at DOST or any DOST accredited testing facilities), secured in compartmentalized plastic storage box, with the following types and diameters: <ol style="list-style-type: none"> double convex, 48-52 mm diameter plano convex, 48-52 mm diameter double concave, 48-52 mm diameter plano concave, 48-52 mm diameter convex-concave lens, 48-52 mm diameter concave-convex lens, 48-52 mm diameter double convex lens, 73-77 mm diameter Must be contained in one plastic storage box. No sharp edges. Free from toxic materials certification Brand name permanently marked on storage box 		
6	Coefficient of Linear Expansion	<p>Functional Specifications: Used to verify coefficient of linear expansion of some metals</p> <p>Performance Specifications: Should be able to verify coefficient of linear expansion of some metals</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> With steam jacket pipe, made of brass, 498-500 mm long x 23-25 mm dia., with steam inlet and outlet, with attachment tube for inserting rubber stopper which in turn is inserted with thermometer Steam jacket pipe supported by a rigid metal base; with alignment and lock mechanism when inserting expanding rod under study, 26.875-27in X 4.375-4.5in X 1.375-1.5in (L x W x T) With dial gauge 0-10 mm range, 0.01 mm readability Supplied with 3.8-4 mm x 498-500 mm brass, copper, steel rods; rods should be free from sharp, pointed edges With English User's Manual that includes operation guide Brand permanently marked on the item 		
7	Connector, Black (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	<p>Functional Specifications: Used to effectively interconnect components in an electrical circuit</p> <p>Performance Specifications: Should be able to effectively interconnect components in an electrical circuit</p> <p>Design Specifications: # 18 copper, AWG stranded, end to end 345-350 mm length, with insulated brass alligator clip, 18 mm - 20 mm jaw length, on one end and 4 mm brass banana plug, on the other end soldered; all black</p>		
8	Connector, Red (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	<p>Functional Specifications: Used to effectively interconnect components in an electrical circuit</p> <p>Performance Specifications: Should be able to effectively interconnect components in an electrical circuit</p>		

		Design Specifications: # 18 copper, AWG stranded, end to end 345-350 mm length, with insulated brass alligator clip, 18 mm-20 mm jaw length, on one end and 4 mm brass banana plug, on the other end, soldered, all red		
9	Connector, Yellow (# 18 copper, AWG stranded) with alligator clip on one end and banana plug on the other end	Functional Specifications: Used to effectively interconnect components in an electrical circuit Performance Specifications: Should be able to effectively interconnect components in an electrical circuit Design Specifications: # 18 copper, AWG stranded, end to end 345-350 mm length, with insulated brass alligator clip, 18 mm-20 mm jaw length, on one end and 4 mm brass banana plug, on the other end soldered, all yellow		
10	DC Ammeter	Functional Specifications: Used to measure DC current in electrical circuit Performance Specifications: Should be able to measure DC current in an electrical circuit Design Specifications: 1. Analog, dual range selectable: -0.2 - 0 - +0.6A/0.02 read; -1.0 - 0 - +3.0A/0.1 read, $\pm 2.5\%$ full scale, analog 2. Dial plate dimensions: 93-95 mm width x 83-85 mm length, 3. Overall encasement dimensions: 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color 4. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal) 5. External zero-adjust calibration 6. With English User's Manual that includes operation guide 7. Brand permanently marked on the item		
11	DC String Vibrator, string included	Functional Specifications: Used to demonstrate standing waves on a string Performance Specifications: Should be able to demonstrate standing waves on a string Design Specifications: 1. Utilizes an offset-weighted shaft on a DC motor 2. Input voltage (0 volts -6 volts DC) 3. Vibration Frequency: controlled by stepless attenuator 4. With steel mounting platform, binding posts for external wire connection 6. With Operation Manual in English 7. Brand permanently marked on the item		
12	DC Voltmeter	Functional Specifications: Used to measure DC voltage across components in an electrical circuit Performance Specifications: Must be able to measure DC voltage across components in an electrical circuit Design Specifications: 1. Analog, dual range selectable -1V -0- +3V/0.1 read-5 0- +15V/ 1.0 read $\pm 2.5\%$ full scale, analog 2. Dial plate dimensions: 93-95 mm width x 83-85 mm length, 3. Overall encasement dimensions: 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color 4. Binding post terminals, threaded, can accommodate standard 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal) 5. External zero-adjust calibration 6. With English User's Manual that includes operation guide 7. Brand permanently marked on the item		
13	Diffraction slits & Diffraction grating Set	Functional Specifications: Used to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction Performance Specifications: Should be able to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction		

		<p>Design Specifications: The set is composed of: 1) Diffraction slits consist of: 1 frame single slit, 1 frame double slits; grating size: 34-36 mm x 16-18 mm; frame size: 48-50 mm x 48-50 mm x 1.98-2 mm thick 2) Diffraction Gratings consist of: 1 frame 50 lines/mm, 1 frame 100 lines/mm, 1 frame 300 lines/mm, 1 frame 600 lines/mm, grating size: 34-36 mm x 16-18 mm, frame size: 48-50 mm x 48-50 mm x 1.98-2 mm thick 3) Each frame placed in compartmentalized storage box 4) Brand permanently marked on the item</p>		
14	Digital Geiger-Muller Counter with radioisotopes samples	<p>Functional Specifications: is used to measure alpha, beta, and gamma radiation</p> <p>Performance Specifications: should be able to measure alpha, beta, and gamma radiation</p> <p>Design Specifications: MAIN UNIT 1. Main unit: Digital Geiger-Muller Counter; measures alpha, beta, gamma radiation; 2. Manufacturer should be accredited by their respective Nuclear Regulatory Institute/Agency and shall provide calibration certificate for each item issued by the Nuclear Institute/Agency of its country of origin. 3. Units of Measurement: milli Roentgen per hour (mR/hr), micro Sievert per hour (μSv/hr), Counts per Minute (CPM), digital readout 4. Range: 0.001 mR/hr to 1000 mR/hr 5. With provision for connecting to desktop/laptop PC, comes with software and appropriate connectors 6. Dimensions: 4-7inches long x 3-4 inches wide x 1-2 inches thick 7. Runs on dual power supply: dry cell and external power, comes with dry cell and adapter for external DC input 8. With English User's Manual that includes operation guide 9. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: I. Training Video Contents: a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment II. Training Video details: a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents). 10. The offered brand of the item must be an international brand. 11. Brand permanently marked on the item. Functional Specifications: is used to provide sources of alpha, beta, and gamma radiations</p> <p>Performance Specifications: should be able to provide sources of alpha, beta, and gamma radiations</p> <p>Design Specifications: SET OF LEGAL RADIOISOTOPE SAMPLES 1. Set of sample legal radioactive sources, each is enclosed in a permanently shield disk: 2.98-3 mm thick x 23-25 mm dia.</p>		

		<p>2. Each disk is identified by radio nuclide, amount of activity in microcuries, half-life and type of radiation The words "Caution - Radioactive Material" appear on the label of each source</p> <p>0.1 microcurie - alpha source: Polonium 210 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</p> <p>0.1 microcurie - beta source: Strontium 90 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</p> <p>1 microcurie -gamma source: Cobalt 60 as per Appendix A (EXEMPT QUANTITIES OF RADIOACTIVE MATERIALS) of Philippine Nuclear Research Institute (PNRI) Licensing of Radioactive Material (CPR Part 02)</p> <p>All 3 radioisotope samples stored in a safe box and properly labeled</p> <p>3. Brand permanently marked on the item; with English User's Manual that includes operation guide (Permanent and properly labeled; labels are scratch-resistant)</p>		
15	Dry Cell Holder (size D)	<p>Functional Specifications: Used to securely mount size D dry cell in place</p> <p>Performance Specifications: Should be able to securely mount size D dry cell in place</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Single Holder for size D dry cell, snap-on type; 2. With built-in nickel plated brass plate connectors; 3. Holders can be interconnected in series or parallel; 4. Plastic body, should be sturdy, thickness: 1.98-2 mm 5. Crack resistant when dropped from 91 cm height, mounted with dry cell; 6. Any color 		
16	Dry Cell, 1.5 volts, size D	<p>Functional Specifications: Used to provide 1.5 volts DC power source for a basic electrical circuit</p> <p>Performance Specifications: Should be able to provide 1.5 volts DC power source for a basic electrical circuit</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. industry standard size D 1.5-volt dry cell 		
17	Engine Model (Internal Combustion)	<p>Functional Specifications: Used to simulate the operation of a 4-stroke cycle gasoline engine</p> <p>Performance Specifications: Should be able to simulate the operation of a 4-stroke cycle gasoline engine</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Cross section model of a 4-stroke cycle gasoline engine model, Size: 13.875-14 inches x 7.875-8 inches x 6.875-7 inches 2. Material: cast alloy construction, mounted on stable base 3. Internal sections in different colors to indicate air, fuel, and gas mixtures and exhaust gas contents. The carburetor is shown in section. 4. The crankshaft can be rotated by hand wheel to simulate the operating cycle of 4-stroke cycle gasoline engine; with electrical contact for illuminating a 3-volt lamp as spark plug to simulate ignition 5. Base with illustration and correct part names and show the following parts correctly: crank case, crank shaft, connecting rod, cylinder block, piston, intake valve, exhaust valve, push rod, spark plug, rocker arm, exhaust manifold, crank shaft gear, cam shaft gear, cam shaft, contact point, carburetor, needle valve, float, throttle valve, intake manifold 6. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment 		

		<p>e. Maintenance of the equipment</p> <p>f. Troubleshooting</p> <p>g. Storage and safekeeping (include cleaning) of the equipment</p> <p>II. Training Video details:</p> <p>a. Shall be in MP4 format.</p> <p>b. Shall be saved in a USB 3.0 Flash Drive.</p> <p>c. Shall have a High-Definition resolution of at least 1080p.</p> <p>d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.</p> <p>e. Shall comply an aspect ratio of 4:3.</p> <p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p>		
18	Flask, Florence, glass, 500 mL	<p>Functional Specifications: Used to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina'</p> <p>Performance Specifications: Should be able to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina'</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. standard 500 mL capacity 2. Round bottom 3. NO Graduations 4. Made of glass 		
19	Force Table	<p>Functional Specifications: Used to demonstrate the vector nature of forces</p> <p>Performance Specifications: Should be able to demonstrate the vector nature of forces</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Table: material-cast iron, diameter: 39.5-40 cm, with stable stand support, 29.5-30 cm height 2. With leveling screw 3. 360° protractor scale, 1° resolution 4. Can demonstrate combination of at least 3 coplanar forces in equilibrium 5. Includes the following accessories: <ol style="list-style-type: none"> a. 3 pieces load hangers -100 grams each b. additional slotted masses to be loaded on each load hanger: 3 pieces-100 grams, 3 pieces- 50 grams, 3 pieces- 20 grams, 3 pieces- 10 grams" c. 3 pieces pulley clamps with guide pulley to be clamped on the Force Table d. 1 piece center rod/ post, nickel plated metal, threaded to be mounted on the center of the Force Table e. 1 piece center/ fastening ring, 33-35 mm diameter x 1.98-2 mm thickness, nickel plated metal f. 4 meters string for hanging loads (crochet type), can suspend 500 grams load without breaking 6. With English User's Manual that includes Assembly and Operation Guide 7. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> I. Training Video Contents: <ol style="list-style-type: none"> a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment" II. Training Video details: <ol style="list-style-type: none"> a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. 		

		<p>d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.</p> <p>e. Shall comply an aspect ratio of 4:3.</p> <p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p>		
20	Fuse Holder w/ Fuse	<p>Functional Specifications: Used to demonstrate the function of fuses</p> <p>Performance Specifications: Should be able to demonstrate the function of fuses</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Fuse: 0.3 amperes, maximum, slow-blow, glass-tube type, Rating should be engrave/etched on metal cap 2. Fuse detachable from holder, holder brass nickel plated, holder mounted on black plastic base w/ dimensions: 10-12 mm x 58-60 mm x 93-95 mm, thickness of base: 1.98-2 mm 3. Binding post terminals mounted on base, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation 4. Connecting wires properly soldered to eyelet of binding posts 5. Each set comes with at least 50 spare fuses 6. Brand name permanently marked on item 		
21	Galvanometer	<p>Functional Specifications: Used to measure small electrical current</p> <p>Performance Specifications: Should be able to measure small electrical current</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Analog, general purpose galvanometer; 2. -500 to +500 μA full scale/10 μA read, full scale accuracy of \pm 2.5%; 3. Dial plate dimensions: 93-95 mm width x 83-85 mm length; 4. Overall encasement dimensions: 93-95 mm width x 128-130 mm depth x 93-95 mm height encasement material: plastic, any color; 5. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal); 6. External zero-adjust calibration; 7. With English User's Manual that includes operation guide; and 8. With molded styropor as part of its packaging 9. Brand name permanently marked on item 		
22	Helical Spring	<p>Functional Specifications: Used to demonstrate transverse waves</p> <p>Performance Specifications: Should be able to demonstrate transverse waves</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Wire material: Galvanized Spring Steel Wire; 2. Unstretched Length range: 1.6 meter to 1.9 meter; 3. Can be stretched to 3 times its length without deformation; 4. Coil Outside Diameter: 19 mm to 22mm; 5. Wire Diameter: 1.2 mm to 1.4 mm; 6. Number of turns per centimeter: 7 to 8 turns; 7. With circular hooks (on both ends), hook diameter is 18-20 mm 		
23	Iron Core Rod, non-corrugated	<p>Functional Specifications: Used to perform activities on electromagnet</p> <p>Performance Specifications: Should be able to perform activities on electromagnet</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Iron rod diameter: 10.5-12 mm, length: 98-100 mm 		
24	Laser Light	<p>Functional Specifications: Used to produce laser beam for diffraction activities</p>		

		<p>Performance Specifications: Should be able to produce laser beam for diffraction activities</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Pen type laser, red output 2. Powered by, 1.5 volts size AA dry cells 3. With ON-OFF switch 4. Body dimensions: 12-12.5 mm diameter x 135-140 mm length 5. Laser spot can be projected to a distance of at least 5 meters 6. Brand permanently marked on the item 		
25	Long Nose Pliers, 6-inch, 1 pair/set	<p>Functional Specifications: Used to bend tiny solid wire connectors</p> <p>Performance Specifications: Should be able to bend tiny solid wire connectors</p> <p>Design Specifications: Long Nose Pliers with side cutter, 6 inches long, chrome vanadium material, 1 pair/set</p>		
26	Magnet Wire	<p>Functional Specifications: Used to perform activities on electromagnet</p> <p>Performance Specifications: Should be able to perform activities on electromagnet</p> <p>Design Specifications: 1 spool magnet wire (insulation coated) #20, 100 g. spool, brand name permanently marked on spool</p>		
27	Manometer, Open U-tube with Nakamura-type Water Pressure Apparatus	<p>Functional Specifications: Used to measure pressure difference of fluids</p> <p>Performance Specifications: Should be able to measure pressure difference of fluids</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Open U-tube glass manometer tube with a 49.8-50 cm arm with funnel top on one arm and a 2.2-2.5 cm rified tip on another arm for easy connection with silicone-rubber tubing, 4-6 mm outer diameter 2. A millimeter scale is fitted between the arms of the tube 3. U-tube is mounted on a wooden board, fixed on a wooden stand for vertical U-tube is mounted on a wooden board, fixed on a wooden stand for vertical mounting 4. Includes SIMPLE WATER PRESSURE APPARATUS (Nakamura type) -its body can be made to rotate around a rigid tube. The rigid tube is L-bent to be inserted into the pressure apparatus, so that the pressure apparatus can be rotated -with 10 pcs spare diaphragms per set 5. Includes 99.5-100 cm silicone-rubber tubing for interconnecting U-Tube manometer and the simple water pressure apparatus 		
28	Miniature Light Bulb	<p>Functional Specifications: Used to demonstrate the conversion of electrical energy to light</p> <p>Performance Specifications: Should be able to demonstrate the conversion of electrical energy to light</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Miniature, incandescent, screw type base 2. Bulb rating: 2.2 V to 2.5 V, 0.3 A, handling current; engraved on base of bulb 3. Operational Specs: <ol style="list-style-type: none"> a) should fit with bulb socket in bulb holder assembly b) should light with one fresh dry cell connected (1.5 volts) 		
29	Miniature Light Bulb Holder	<p>Functional Specifications: Used to securely mount light bulb in place</p> <p>Performance Specifications: Should be able to securely mount light bulb in place</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Socket to match the miniature incandescent light bulb, socket in plastic housing; 2. Socket housing is mounted on black, plastic base: Base dimensions : 10-12 mm x 58-60 mm x 93-95 mm, Material thickness: 1.98-2 mm 		

		<p>3. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation;</p> <p>4. Connecting wires properly soldered to eyelet of binding posts.</p>		
30	Mirror Set, acrylic	<p>Functional Specifications: Used to demonstrate the formation of image by reflection of light</p> <p>Performance Specifications: Should be able to demonstrate the formation of image by reflection of light</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Set of 3 spherical mirrors, acrylic, secured in compartmentalized storage box with the following types and diameters: <ol style="list-style-type: none"> 1-plane mirror, 48 to 52 mm diameter 1-concave mirror, 48 to 52 mm diameter 1-convex mirror, 48 to 52 mm diameter All mirrors free from sharp edges; Should be clear and no sign of cloudiness 		
31	Motor-Generator Model Experiment Set	<p>Functional Specifications: Used to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function</p> <p>Performance Specifications: Should be able to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> DC motor mode, runs on 6 volts -12 volts DC Can function as generator when the armature is rotated; AC-DC generator output is determined by commutator configuration; Selectable split-ring and slip-ring commutator that enables AC-DC output w/o changing the direction of rotation of the rotor; Binding posts, for external connections, labeled with "motor input: 6 V-12 VDC" and "generator output" Rotor is free to rotate unimpeded inside the stator without any parts of the rotor and stator in contact Stator is activated by a permanent magnet. Stator assembly should have one color except blue and red; Example all yellow, all white or all black stator assembly. Includes spare: 4 pcs belt, 1 set magnet; Armature diameter: 66-68 mm, Armature shaft diameter: \varnothing 7.5-8 mm, w/ rigid mounting; Drive pulley, plastic, diameter: 166-168 mm, driven pulley diameter: 24-26 mm, steel nickel plated; Base wooden board dimensions: 195-200 mm x 295-300 mm x 18-20 mm 		
32	Multimeter, digital	<p>Functional Specifications: Used to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency</p> <p>Performance Specifications: Should be able to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency</p> <p>Design Specifications: Measurement Coverage, or smaller values in lower range and larger values in upper range:</p> <ol style="list-style-type: none"> DC Voltage: 60mV, 6V, 60V, 600V, 1000V $\pm 0.7\%+2$. AC Voltage: 600mV, 6V, 60V, 600V, 750V $\pm 0.8\%+3$. DC Current: 600μA, 6000μA, 60mA, 600mA $\pm 1.2\%+3$ / 6A, 10A $\pm 2.0\%+10$. AC Current: 600μA, 6000μA, 60mA, 600mA $\pm 1.5\%+3$ / 6A, 10A $\pm 3.0\%+10$. Resistance: 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 60MΩ $\pm 1.2\%+5$. Capacitance: 10nF, 100nF, 1000nF, 10μF, 100μF, 1000μF, 10mF, 100mF $\pm 3.0\%+3$. Frequency: 10Hz, 100Hz, 1000Hz, 10kHz, 100kHz, 1000kHz, 10MHz $\pm 1.0\%+5$. Duty Cycle :0.1%-99.99% $\pm 3.0\%+2$. Temperature: -20~1000 Centigrade degree / -4~1832 F Display: 6000 counts Auto range USB Interface function. The measured data stored in the instrument can be uploaded to computer for display, record and analysis 		

		<p>13. Comes with: 1*Pair Test Leads, 1*English Operating Manual. 1*Temperature Probe, 1*USB Data Cable</p> <p>14. Brand permanently marked on the item</p>		
33	Optical Bench Set	<p>Functional Specifications: Used for mounting lenses, mirrors, screen, light source and other optics components</p> <p>Performance Specifications: Should be able to mount lenses, mirrors, screen, light source and other optics components in place</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> This Complete Set includes: <ol style="list-style-type: none"> 1-meterstick, with centimeter and millimeter graduations 1-lens support for the 50 mm diameter lenses and 50 mm diameter mirrors; should be stable when mounted on meterstick, smooth sliding 1-lens support for 75 mm lens, should be stable when mounted on meterstick, smooth sliding 1- screen support, should be stable when mounted on meterstick, smooth sliding 5-white board screens: 9.5-10 cm x 11.5-12 cm each 2-metal supports for meter stick, should be stable, meterstick should not tip off 1-candle holder, should be stable when mounted on meterstick, smooth sliding 1-paraffin candle Stand supports for meter stick, holders for lenses, mirrors, screens, and candle should be placed inside one compartmentalized casing; With English User's Manual that includes operation guide. Brand permanently marked on packaging box 		
34	Pair of Bar Magnets	<p>Functional Specifications: Used to demonstrate that some things can make objects move and describe forces exerted by magnets</p> <p>Performance Specifications: Should be able to demonstrate that some things can make objects move and describe forces exerted by magnets</p> <p>Design Specifications: Pair of Bar Magnets:</p> <ol style="list-style-type: none"> Dimensions of each: 148-150 mm x 10-12 mm x 7-8 mm Magnet strength: can suspend loads at least 2 times its weight when suspended end-to-end at north-south pole of the magnet, Color Code: north pole of the magnet should be colored red and the south pole colored blue 		
35	Prism Set	<p>Functional Specifications: Used to demonstrate characteristics of refraction of light</p> <p>Performance Specifications: Should be able to demonstrate characteristics of refraction of light</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Set is composed of: <ol style="list-style-type: none"> 1-Rectangular block, solid acrylic, clear on one side and frosted on other side with the following dimensions: length = 68-70 mm width = 48-50 mm thickness = 18-20 mm 1-Right angle prism, solid acrylic, clear on one side and frosted on other side with the following dimensions: thickness: 8-10 mm , base = 38-40 mm height = 63-65 mm 1-Semi-circular block, solid acrylic, clear on one side and frosted on other side with the following dimensions: diameter=98-100 mm, thickness 8-10 mm Secured in reusable plastic storage casing; Brand name permanently marked on the reusable storage casing. 		
36	Resistance Board	<p>Functional Specifications: Used to investigate factors affecting resistance of a conductor</p> <p>Performance Specifications: Should be able to investigate factors affecting resistance of a conductor</p> <p>Design Specifications:</p>		

		<p>1. Board: dimensions-height: 28 mm-30 mm, width: 118 mm-120 mm length: 645 mm-650 mm, material plastic, channel type, thickness of material: 2.9 mm-3.2 mm free of warpage and other imperfection like flushes etc.</p> <p>2. Board is mounted with the following wires:</p> <ol style="list-style-type: none"> 2 - Nichrome wires of 2 different diameters: 0.23-0.25 mm & 0.48-0.5 mm; length: 598-600 mm 1 - Stainless steel wire diameter: 0.48-0.5 mm, length: 598-600 mm 1 - Copper wire diameter: 0.48-0.5 mm, length: 598-600 mm <p>3. Board should be marked by decimeter graduations that only span along entire wires' length</p> <p>4. All wires should be rigidly fastened to stainless steel terminal posts</p>		
37	Ring and Ball Apparatus	<p>Functional Specifications: Used to demonstrate thermal expansion (and contraction) of a metal</p> <p>Performance Specifications: Should be able to demonstrate thermal expansion (and contraction) of a metal</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> The ring and ball set demonstrates thermal expansion. Comprising of a captive brass ball secured to a mounted brass ring by a chain. Diameter of Ball: 24.99-25.01mm, smooth surface Inside Diameter of Ring: 25.03-25.05 mm, smooth surface Outside Diameter of Ring: of 36-38 mm Thickness of Ring: 4-6 mm Diameter of Brass Stem: 4-5mm Handle of brass ring made of wood. Chain is made of stainless steel with a 3-turn stainless wire ring to keep the ball in the chain during heating. 		
38	Ripple Tank Set	<p>Functional Specifications: Used to demonstrate properties of transverse waves</p> <p>Performance Specifications: Should be able demonstrate properties of transverse waves</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Tank: 54.5-55 cm x 54.5-55 cm , with foam beaches perimeter to damp reflections, with 4 detachable legs with leveling screws, height of legs: 54.5-50 cm, Glass bottom: 39.5-40 cm x 39.5-40 cm Should include the following accessories: <ol style="list-style-type: none"> 1-ripler bar with electronic frequency controller (digital) 1-hand rippler bar 2-spherical dippers, removable 4-parafin blocks 1-glass plate, 21.5-22 cm x 29.5-30 cm 1-parabolic reflector 1-plastic viewing screen, white, 61.5-62 cm x 61.5-62 cm Light Source: <ol style="list-style-type: none"> LED light source 12 volts, 5 watts with electronic controlled strobe to synchronize with frequency controller detachable and adjustable mounting unto the tank black shielded with ventilation With frequency display unit that indicates synchronizing frequency between the controller and the strobe With English User's Manual that includes Assembly and Operation Guide Branded and permanently marked on the item Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following: <ol style="list-style-type: none"> Training Video Contents: <ol style="list-style-type: none"> Name of the equipment Parts of the equipment Instruction on how to use the equipment Sample Experiment/Activity using the equipment Maintenance of the equipment Troubleshooting Storage and safekeeping (include cleaning) of the equipment Training Video details: 		

		<p>a. Shall be in MP4 format.</p> <p>b. Shall be saved in a USB 3.0 Flash Drive.</p> <p>c. Shall have a High-Definition resolution of at least 1080p.</p> <p>d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.</p> <p>e. Shall comply an aspect ratio of 4:3.</p> <p>f. Shall have a cover video pane containing the equipment name and a video pane for each video content.</p> <p>g. The video, voiceover (audio), and subtitle shall be in sync.</p> <p>h. The training video shall cover all the above requirement (video contents).</p>		
39	Slinky Coil, metal	<p>Functional Specifications: Used to demonstrate longitudinal waves</p> <p>Performance Specifications: Should be able to demonstrate longitudinal waves</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. 2.875-3 inches diameter x 3.875-4 inches long 2. zinc or nickel plated 		
40	Sound Resonance Set: Loud Speaker	<p>Functional Specifications: Used to provide continuous sound tone of certain frequency</p> <p>Performance Specifications: Should be able to provide continuous sound tone of certain frequency</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. For connection to the sound signal generator, 1.875-2 inches cone diameter 2. 1 watt, all frequency, 4 Ohms to 8 Ohms impedance 3. No enclosure, mounted on an open board with stand to match height of resonance tube Height of loudspeaker with stand: center of loudspeaker 50-52 mm height from table surface to match with height of resonance tube (please see resonance tube specifications) 4. Binding post terminal connectors conveniently located, should not block opening of resonance tube during activity, color coded encapsulation red for positive, black for negative 		
41	Sound Resonance Set: Resonance Tube	<p>Functional Specifications: Used to vary the length of air column to produce resonance of sound coming out from the loudspeaker</p> <p>Performance Specifications: Should be able to vary the length of air column to produce resonance of sound coming out from the loudspeaker</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. With plastic stopper fixed on one end of inner tube 2. Outer tube: OD: 61-63 mm diameter, 1025-1030 mm long; with detachable rubber plug on free end for safe transport of inner-outer tube assembly 3. Inner tube: OD: 48-50 mm, 1095-1100 mm long, With permanent graduation with mm scale at 1 mm division to indicate length of air column as the inner tube is pushed or pulled along the outer tube; print should resist rubbing, no sign of fade after 100 slides; inner tube with good quality air sealing material (felt cloth) 4. With rigid and stable stand to make effective height of outer tube align with loudspeaker cone (please see loudspeaker specifications) 5. Height including stand: center of outer tube elevated by 50-52 mm from the surface) 6. With English User's Manual that includes Operation Guide 		
42	Sound Resonance Set: Tone Generator	<p>Functional Specifications: Used to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone</p> <p>Performance Specifications: Should be able to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Should be able to generate 20 Hz-20 kHz frequency sine waves; with digital display readout of frequency setting 		

		<p>2. Frequency setting on unit should match to measured sound output coming out from connected loudspeaker within 3%. Example if the sound generator is set to produce sound of 256 Hz the measured sound frequency coming out from loudspeaker should be in the range 248-264 Hz.</p> <p>3. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics)</p> <p>4. Maximum sound output from connected loudspeaker: 55 dB to 65 dB at 1kHz measured at 8-12 cm distance between loudspeaker and sound measuring instrument</p> <p>5. With terminals for external connection to loudspeaker and to oscilloscope</p> <p>6. Power supply: 4.5 volts -12 volts DC internal by way of dry cells or external by way of appropriate adapter</p> <p>7. With English User's Manual that includes Operation Guide</p> <p>8. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:</p> <p>I. Training Video Contents:</p> <ol style="list-style-type: none"> Name of the equipment Parts of the equipment Instruction on how to use the equipment Sample Experiment/Activity using the equipment Maintenance of the equipment Troubleshooting Storage and safekeeping (include cleaning) of the equipment <p>II. Training Video details:</p> <ol style="list-style-type: none"> Shall be in MP4 format. Shall be saved in a USB 3.0 Flash Drive. Shall have a High-Definition resolution of at least 1080p. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. Shall comply an aspect ratio of 4:3. Shall have a cover video pane containing the equipment name and a video pane for each video content. The video, voiceover (audio), and subtitle shall be in sync. The training video shall cover all the above requirement (video contents). 		
43	Strobe Light	<p>Functional Specifications: Used to provide flashes of light so that fast rotating objects appear to freeze</p> <p>Performance Specifications: Should be able to provide flashes of light so that fast rotating objects appear to freeze</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Light source: white LED Variable frequency range: 2.5 Hz-250 Hz, variable Power source: Rechargeable alkaline/li-ion/li-po batteries with corresponding charger (both included in package) AND/OR unit operates directly from DC adapter, DC adapter should be included With English User's Manual that includes operation guide 		
44	Switch, Knife type, Single Pole Single Throw	<p>Functional Specifications: Used to open and close an electrical circuit</p> <p>Performance Specifications: Should be able to open and close an electrical circuit</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Single pole Single Throw Knife type switch Knife dimensions: 0.7- 0.8 mm x 7-8 mm x 53-55 mm, nickel plated brass Plastic handle dimensions: 8-9 mm x 8-9 mm x 20-23 mm Contact plates for knife dimensions: 7-8 mm x 18-20 mm, nickel plated brass, thickness of material 0.48-0.5 mm Knife switch-contact plates assembly mounted on black plastic base: 10-12 mm x 58-60 mm x 93-95 mm, thickness of base: 1.8-2 mm Binding post terminals, threaded, can accommodate standard 4 mm banana plug, brass material, with yellow plastic encapsulation Internal connectors properly soldered to eyelet of binding posts; 		

			6. Switch fixations should survive 100 continuous on-off operation cycles, without signs of wear and tear		
45	Ticker Timer Set	Functional Specifications: Used to measure and record short time intervals by marking "ticks" on paper tape Performance Specifications: Should be able to measure and record short time intervals by marking "ticks" on paper tape Design Specifications: 1. Operates on 6 to 12V a.c. power supply. Has a plastic base and screw type binding posts; 2. Supplied with: a) 38-40 mm diameter carbon paper disc, 100 pcs; b) 13-15 mm wide ticker tape, 3 rolls; c) C-clamp			
46	Toy Car, non-friction, non-battery	Functional Specifications: Used to demonstrate that some things like people can make objects move Performance Specifications: Should be able to demonstrate that some things like people can make objects move Design Specifications: 1. Dimensions: 49.5-50 cm x 29.5-30 cm x 24.5-25 cm (L x W x H) 2. Material: plastic, any color or color combination 3. 4-wheels free to turn 4. not driven by any power source or winding mechanism except by pushing or pulling by people			
47	Tuning Fork Set	Functional Specifications: Used to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale Performance Specifications: Should be able to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale Design Specifications: 1. 8-piece tuning forks with standard Scale Letter and Frequencies: C=256 Hz, D=288 Hz, E=320 Hz, F=341 Hz, G=384 Hz, A=426 Hz, B=480 Hz, C=512 Hz 2. Aluminum alloy, non-magnetic, handle: 4-4.5 cm length 3. Frequency and scale letter stamped on each fork 4. With rubber mallet 5. Measured sound output frequency should be within 1% of frequency rating stamped on each tuning fork 6. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics) 7. Brand permanently marked on the storage box			
48	Vacuum Tube and Manual Vacuum Pump	Functional Specifications: Used to demonstrate the effect of air resistance on the motion of freely falling objects Performance Specifications: Should be able to demonstrate the effect of air resistance on the motion of freely falling objects Design Specifications: A. Vacuum tube: 1. 905-910 mm long x 53-55 mm diameter, transparent acrylic 2. With stopcock mounted in a rubber stopper on one end, and solid rubber stopper on the other end 3. Supplied with 12-13 inches long vinyl tubing for connection to vacuum pump 4. Includes metal disc and a feather as specimens B. Vacuum pump: 1. Hand operated 2. With pressure gauge 3. Pump is sealed, self-lubricating, with removable cap, and elastic valve 4. Fixed on outer port to provide quick vacuum release 5. Nozzle fits standard 1/4-inch diameter tubing 6. Brand permanently marked on the item			

STATEMENT OF COMPLIANCE

I hereby commit to provide the above specified requirements in compliance with the Technical Specifications for the Project: **Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023.**

Name and Signature of Bidder’s Authorized Representative

Section VIII. Technical Drawings

See Annex "I" for the Technical Drawings

***Section IX. Checklist of Technical and
Financial Documents***

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class “A” Documents

Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) **in accordance with Section 8.5.2 of the IRR;**

Technical Documents

- (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- (c) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**
- (d) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission **or** Original copy of Notarized Bid Securing Declaration; **and**
- (e) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts, if applicable; **and**
- (f) Original duly signed Omnibus Sworn Statement (OSS) **and** if applicable, Original Notarized Secretary’s Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

- (c) The prospective bidder’s computation of Net Financial Contracting Capacity (NFCC) **or A** committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

Class “B” Documents

- (d) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence **or** duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

- (e) Original of duly signed and accomplished Financial Bid Form; **and**
- (f) Original of duly signed and accomplished Price Schedule(s).

See **Annex "J"** for the Price Schedule Form.

Other documentary requirements under RA No. 9184 (as applicable)

- (g) *[For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.
- (h) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

LIST OF ALL ONGOING GOVERNMENT & PRIVATE CONTRACTS INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED

Business Name : _____

Business Address : _____

Name of Contract/ Project Cost	Owner's Name a. Address b. Telephone Nos.	Nature of Work	Bidder's Role		Date Awarded a. Date Started b. Date of Completion	% of Accomplishment		Value of Outstanding Works / Undelivered Portion
			Description	%		Planned	Actual	
<u>Government</u>								
<u>Private</u>								

Note: (In case of no ongoing contract, the bidder shall submit this duly signed form and indicate **“No ongoing contracts” or “None” or “Not Applicable (N/A)”** under the Column for Name of Contract (first column from left)

Submitted by: _____

Printed Name and Signature of Authorized Representative

Designation: _____

Date: _____

STATEMENT IDENTIFYING THE SINGLE LARGEST COMPLETED CONTRACT

Business Name : _____

Business Address : _____

Name of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed d. Contract Performance certified by End User
			Description	%		
<u>Government</u>						
<u>Private</u>						

Note: The bidder shall be able to support this statement with:

Duly signed Contracts/Purchase Orders (POs)/ Agreements/Memoranda of Agreement (MOA)/Notices of Award (NOA)/Job Orders or Notices to Proceed (NTP) with the corresponding

Certificates of Completion of Delivery (CCDs)/ Certificates of Final Acceptance (CFAs)/duly signed Delivery Receipts (DRs), or duly accomplished Inspection and Acceptance Reports (IARs)

Submitted by : _____

(Printed Name and Signature)

Designation : _____

Date : _____

Joint Venture Agreement Form

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into By and Between _____, of legal age, (civil status), owner/proprietor of _____ and a resident of _____.
- and -

_____, of legal age, (civil status), owner/proprietor of _____ and a resident of _____.

THAT both parties agree to join together their manpower, equipment, and what is needed to facilitate the Joint Venture to participate in the Eligibility, Bidding and Undertaking of the hereunder stated project to be conducted by the (Name of the Procuring Entity).

NAME OF PROJECT	CONTRACT AMOUNT

That both parties agree to be jointly and severally liable for the entire assignment.

That both parties agree that _____ and _____ own the share and interest of _____ and _____ [indicate percentage of shares] respectively

That both parties agree that _____ and/or _____ shall be the Official Representative of the Joint Venture, and is granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the bidding as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

THAT this Joint Venture Agreement shall remain in effect only for the above stated Projects until terminated by both parties.

Done this _____ day of _____, in the year of our Lord _____.

SIGNED IN THE PRESENCE OF:

Witness

Witness

REPUBLIC OF THE PHILIPPINES) S.S.
PASIG CITY, METRO MANILA)

A C K N O W L E D G M E N T

BEFORE ME, a Notary Public in and for Pasig City, Metro Manila, Philippines, this _____ day of _____, 201_ personally appeared:

<u>NAME</u>	<u>GOVERNMENT-ISSUED IDENTIFICATION CARD</u>		
	<u>Number</u>	<u>Issued on</u>	<u>Issued at</u>
_____	_____	_____	_____
_____	_____	_____	_____

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledged to me that same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a JOINT VENTURE AGREEMENT consisting of pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witnesses on the left hand margin of each and every page hereof.

WITNESS MY HAND AND SEAL on the date and place first above written.

NOTARY PUBLIC
Until December 31, 20__

Doc. No. _____
Page No. _____
Book No. _____
Series of 20__

NET FINANCIAL CONTRACTING CAPACITY (NFCC) FORM

A. Summary of the Applicant Supplier’s/Distributor’s/Manufacturer’s assets and liabilities on the basis of the attached income tax return and audited financial statement, stamped “RECEIVED” by the Bureau of Internal Revenue or its duly accredited and authorized institutions, for the preceding calendar/tax year which should not be earlier than two (2) years from date of bid submission.

		Year 20__
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = K (current asset – current liabilities) minus value of all outstanding works under ongoing contracts including awarded contracts yet to be started

NFCC = P _____

K = 15 regardless of contract duration

Herewith attached are certified true copies of the income tax return and audited financial statement: stamped “RECEIVED” by the BIR or its duly accredited or authorized institution for the preceding year which should not be earlier than two (2) years from date of bid submission.

Submitted by:

Name of Supplier / Distributor / Manufacturer

Signature of Authorized Representative

Date : _____

NOTE: If Partnership or Joint Venture, each Partner or Member Firm of Joint Venture shall submit the above requirements.

Performance Securing Declaration (Revised)
[if used as an alternative performance security but it is not required to be submitted with the Bid, as it shall be submitted within ten (10) days after receiving the Notice of Award]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

PERFORMANCE SECURING DECLARATION

Invitation to Bid: [Insert Reference Number indicated in the Bidding Documents]
To: [Insert name and address of the Procuring Entity]

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, to guarantee the faithful performance by the supplier/distributor/manufacturer/contractor/consultant of its obligations under the Contract, I/we shall submit a Performance Securing Declaration within a maximum period of ten (10) calendar days from the receipt of the Notice of Award prior to the signing of the Contract.
2. I/We accept that: I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of one (1) year for the first offense, or two (2) years **for the second offense**, upon receipt of your Blacklisting Order if I/We have violated my/our obligations under the Contract;
3. I/We understand that this Performance Securing Declaration shall cease to be valid upon:
 - a. issuance by the Procuring Entity of the Certificate of Final Acceptance, subject to the following conditions:
 - i. Procuring Entity has no claims filed against the contract awardee;
 - ii. It has no claims for labor and materials filed against the contractor; and
 - iii. Other terms of the contract; or
 - b. replacement by the winning bidder of the submitted PSD with a performance security in any of the prescribed forms under Section 39.2 of the 2016 revised IRR of RA No. 9184 as required by the end-user.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of [month] [year] at [place of execution].

*[Insert NAME OF BIDDER OR ITS
AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant*

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]



PROJECT: **Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023**

CONTRACT NO.:

CONTRACT

THIS CONTRACT made and entered into this ____ day of _____ 2023 by and between **DEPARTMENT OF EDUCATION**, located at DepEd Complex, Meralco Avenue, Pasig City, Philippines, represented herein by its _____, _____, as per Department Order No. ____, s. _____ (hereinafter referred to as “**DEPED**”); and _____ represented herein by its _____, _____, with office address at _____, Philippines (hereinafter referred to as “_____”), as per Secretary’s Certificate dated _____ (hereto attached as Annex “A”).

DEPED and _____ are collectively called “**PARTIES.**”

WHEREAS, DEPED invited bids for the *Mass Production, Supply, and Delivery of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 and Grades 4 to 6, Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools for Grades 11 to 12 (Core & STEM) 2022 Rebid and 2023* consisting of **nineteen (19) lots**, and received bids from ____ (__) bidders for Lot No. __; **DEPED** opened, read, and evaluated the bids of the ____ (__) bidders and declared _____ as having the lowest calculated bid for Lot No. __; after evaluation, **DEPED** post-qualified and declared the bid of _____ as the lowest calculated responsive bid for Lot No. __ in the sum of **PHILIPPINE PESOS** _____ **MILLION,** _____ **THOUSAND,** _____ **and 00/100 (PhP _____) ONLY**, (hereinafter called the “Contract Price”) detailed as follows:

Lot No.	Description	Quantity	Amount (in Php)

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to;
2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz:
 - a. Philippine Bidding Documents (PBD);
 - i. Technical Specifications;
 - ii. General and Special Conditions of the Contract;
 - iii. Schedule of Requirements; and
 - iv. Bid Bulletin No. 1 dated _____.
 - b. _____'s bid, including the eligibility requirements, technical and financial proposals, and all other documents or statements submitted;
 - c. Performance Security;
 - d. Notice of Award of Contract and _____'s conforme thereto; and
 - e. Other contract documents required by existing laws and/or **DEPED** in the PBD. _____ agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Order, and Warranty Security, shall form part of the Contract.
3. _____ shall post a Performance Security within ten (10) calendar days from receipt of the Notice of Award in the form and amount prescribed therein. The performance security shall be posted in favor of **DEPED**, and shall be forfeited in the event it is established that _____ is in default of any of its obligation under this contract. _____ shall be responsible for the extension of its performance security and/or undertake to renew its performance security whenever necessary, and without need of prior notice or instruction from the **DEPED**, to ensure that it is in force and effect for the whole duration of the contract and until a Certificate of Final Acceptance is duly issued.
4. The goods referred to in this Contract shall be delivered by _____ at _____ within _____ calendar days from the receipt of the Notice to Proceed (NTP). _____ shall ensure that the goods will be delivered in accordance with the Schedule of Requirements, which is hereto attached as Annex "B" and made an integral part hereof.

Goods delivered to sites other than the designated delivery site without **DEPED**'s written authorization and/or approval may be rejected by the latter. Violation of this provision, based on documents and reports submitted and validated by the authorized receiving personnel may be cause for the termination of the Contract
5. **DEPED** shall have the right to inspect and test or cause the testing of the goods covered by the Contract, at any time or stage of contract implementation. Pre-delivery and Pre-implementation Conference shall be conducted prior to the inspection of goods by the designated DepEd Inspectorate Team, as may be necessary or applicable.
6. **DEPED** shall have the right to visit and inspect _____'s premises covered by the Contract at any time or stage of the contract implementation to monitor and assess _____'s capacity to discharge its contractual obligations.

7. Prior to and for purposes of inspection, _____ shall ensure convenient access to the goods for inspection. _____ shall assign personnel to undertake the handling, unpacking, assembly, commissioning, disassembly, repacking, resealing, and sorting of the goods prior to, during, and after inspection.
8. The goods shall be inspected by the designated DepEd Inspectorate Team. _____ shall coordinate with **DEPED**, through the Procurement Management Service-Contract Management Division (ProcMS-CMD), on the conduct of inspection or pre-delivery inspection (PDI). Any request for inspection or PDI shall be done in writing, and submitted in accordance with SCC Clause 4 of the Bidding Documents.
9. The goods must conform to and comply with the standards mentioned in Section VI. Schedule of Requirements of the Bidding Documents, and must be in accordance with the final technical specifications as approved by the Bids and Awards Committee, or as amended by subsequently issued Bid Bulletin, if any, based on the samples submitted by _____, and reflected in the post-qualification report, which is hereto attached as Annex "C" and made an integral part hereof.

Any proposal by _____ to deliver goods of different technical specifications, in lieu of those of the approved bids or samples, shall not be allowed. However, under justifiable circumstances, delivery of goods of equivalent, higher or superior technical specifications may be permitted, subject to the evaluation and favorable recommendation of the **DEPED's** end-user or implementing unit, and the approval of the herein authorized signatory. In any such case, the proposal by _____ for substitution shall be in writing and shall not result in any additional cost or undue burden to **DEPED**.

10. Goods with defects or non-compliant with the required technical specifications upon delivery shall be rejected orally or in writing by **DEPED** and replaced by _____ in accordance with the warranty provisions in the bidding documents. The replacement goods for this reason shall be subject to re-inspection.
11. In case _____ encounters condition(s) impeding timely delivery of the goods, _____ shall promptly notify **DEPED** in writing within five (5) calendar days from notice of such condition(s). Any request for work suspension and/or contract period extension shall be promptly done in writing as soon as circumstances for such request have become apparent. _____ must provide sufficient proof to support any request for work suspension and/or contract period extension.
12. The Contract Price shall be paid to _____ in accordance with the following disbursement procedures:
 - a. Upon submission of an irrevocable letter of credit or Bank Guarantee issued by a Universal or Commercial Bank, an advance payment not to exceed fifteen percent (15%) of the contract amount shall be allowed and paid within sixty (60) calendar days from signing of the Contract.
 - b. _____ may submit a request for payment based on the following:
 - (i) cumulative quantities of goods delivered based on the schedule of deliveries and other relevant terms and conditions of the Contract;
 - (ii) duly signed Delivery Receipts; and

- (iii) duly signed Inspection and Acceptance Reports (IARs), including certification by _____, duly signed and dated by the authorized representative of the **DEPED** indicating that the goods have been delivered in accordance with the Contract.

Other documents in support of a request for payment may be prescribed by **DEPED** pursuant to existing disbursement, accounting and auditing rules and procedures.

- c. Subject to the recoupment of the advance payment contemplated in Clause 12(a) above and retention contemplated in the immediately succeeding clause, payment shall be made to _____ within sixty (60) days from submission of the documents specified in SCC Clause 2.2 and other documents as may be prescribed by **DEPED**, in the following manner:
 - i. For the initial progress payment, a minimum of 25% of the Contract Price shall be paid to the Supplier upon delivery of at least 25% of the goods and acceptance of the same by an authorized representative of DepEd;
 - ii. Final payment shall consist of the full and final payment of the unpaid inspected and accepted goods, subject to the submission of the required documents under the Bidding Documents.
- 13. Payments shall be subject to the “Warranty” provision in the form of either retention money in an amount equivalent to _____ the payment, or a special bank guarantee in the amount equal to _____ of the Contract Price as provided under Section 62.1 of R.A. 9184 and its Revised IRR.
 - a. The warranty period of _____ shall reckon from the date of issuance of Certificate of Final Acceptance by **DEPED**.
 - b. In case _____ opts for retention money, the amount shall be released at the expiration of the warranty period or the remaining amount in case it has been utilized pursuant to the warranty provision unless, during the remainder of the warranty period, the retention money is substituted with a special bank guarantee.
- 14. Ownership, title, rights, and interest with respect to the contents of the _____, including all resources, records, or materials used or obtained in the course of this Agreement shall vest exclusively with **DEPED**. _____ hereby irrevocably waives any claim thereto. _____ shall not, in any manner or for any purpose, use the contents of the _____ beyond what is expressly allowed for the purpose of accomplishing the terms under this Contract, unless express permission of **DEPED** in writing is obtained.
- 15. Each party in the performance of their respective duties and responsibilities under this Contract and in the implementation thereof shall adhere to Republic Act No. 10173, otherwise known as the “Data Privacy Act of 2012.” Any gathered data and information should be protected and respected during the term and even after the termination of this Contract. The processing of any gathered data and information should be in compliance with the confidentiality and privacy requirements under the said law and applicable regulations.

16. _____ shall be liable for liquidated damages for the delay in delivery of goods in an amount equal to one-tenth (1/10) of one percent (1%) of the cost of the delayed goods scheduled for delivery, for every day of delay until such goods are finally delivered to and accepted by **DEPED**. **DEPED** shall deduct the liquidated damages from any money due or which may become due to _____, or collect from any of the securities or warranties posted by _____, whichever is convenient to **DEPED**. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the Contract Price, **DEPED** may rescind or terminate the Contract, without prejudice to other courses of action and remedies available under the circumstances.
17. The **PARTIES** shall make every effort to resolve amicably and by mutual consultation any and all disputes or differences arising between the **PARTIES** in connection with the implementation of the Contract. Should such dispute not be resolved amicably, it shall be submitted to Early Neutral Evaluation pursuant to R.A. No. 9285, or the "Alternative Dispute Resolution Act of 2004," and its Implementing Rules and Regulations.

IN WITNESS WHEREOF, the **PARTIES** hereto have caused this Contract to be executed in accordance with governing laws on the day and year first above written.

SIGNED, SEALED AND DELIVERED BY:

Department of Education

SIGNED IN THE PRESENCE OF:

DEPED's Witness

's Witness

CERTIFIED FUNDS AVAILABLE:

Chief Accountant

REPUBLIC OF THE PHILIPPINES)
_____, METRO MANILA) S.S

ACKNOWLEDGMENT

BEFORE ME, a Notary Public in and for _____, Philippines, this _____ day of _____ 2023 personally appeared:

NAME

GOVERNMENT ISSUED ID

(Number, Issued On, Issued By)

Department of Education

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledge to me that the same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a CONTRACT consisting of six (6) pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witness on the left-hand margin of each and every page hereof.

WITNESS MY HAND AND SEAL on the date and place first above written.

Doc. No. ____;
Page No. ____;
Book No. ____;
Series of 2023.

NOTARY PUBLIC

Bid Security (Bank Guarantee) Form

WHEREAS, [insert name of Bidder] (hereinafter called the "Bidder") has submitted its bid dated [insert date] for the [insert name of contract] (hereinafter called the "Bid").

KNOW ALL MEN by these presents that We [insert name of Bank] of [insert name of Country] having our registered office at [insert address] (hereinafter called the "Bank" are bound unto the *DEPARTMENT OF EDUCATION Central Office*, (hereinafter called the "Entity"), in the sum of [insert amount] for which payment well and truly to be made to the said Entity the Bank binds itself, its successors and assigns by these presents.

SEALED with the Common Seal of said Bank this ___ day of _____ 201_.

THE CONDITIONS of this obligation are:

1. If the Bidder:
 - (a) withdraws its Bid during the period of bid validity specified in the Form of Bid; or
 - (b) does not accept the correction of arithmetical errors of its bid price in accordance with the Instructions to Bidder; or
2. If the Bidder having been notified of the acceptance of its bid by the Procuring Entity during the period of bid validity:
 - (a) fails or refuses to execute the Contract Form in accordance with the Instructions to Bidders, if required; or
 - (b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders.

We undertake to pay to the Entity up to the above amount upon receipt of its first written demand, without the Entity having to substantiate its demand, provided that in its demand the Entity will note that the amount claimed by the Entity is due to the Entity owing to the occurrence of one or both of the two (2) conditions, specifying the occurred condition or conditions.

The Guarantee will remain in force up to and including the date [insert days] days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Entity, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE _____
WITNESS _____

(Signature, Name and Address)

SIGNATURE OF THE BANK _____
SEAL _____

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION **Project Identification No.: *[Insert number]***

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
 - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
 - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
 - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this day of *[month]* *[year]* at *[place of execution]*.

*[Insert NAME OF BIDDER OR ITS
AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant*

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Omnibus Sworn Statement (Revised)
[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with the law, do hereby depose and state that:

1. *[Select one, delete the other:]*

[If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

[If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

[If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

[If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
- a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of __, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

Jurat

[Format shall be based on the latest Rules on Notarial Practice]

Performance Security (Bank Guarantee) Form

To : The Secretary
Department of Education
DepEd Complex, Meralco Avenue
Pasig City

Attention: The Chairperson
Bids and Awards Committee

WHEREAS, *[insert name and address of Supplier]* (hereinafter called the "Supplier") has undertaken, in pursuance of Contract No. *[insert number]* dated *[insert date]* to execute *[insert name of contract and brief description]* (hereinafter called the "Contract");

AND WHEREAS, it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS, we have agreed to give the Supplier such a Bank Guarantee;

NOW THEREFORE, we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Supplier, up to a total of *[insert amount of guarantee]* proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[insert amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed there under or of any of the Contract documents which may be made between you and the Supplier shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of your issuance of the Notice of Final Acceptance.

SIGNATURE AND SEAL OF THE GUARANTOR

NAME OF BANK

ADDRESS

DATE _____

FINANCIAL BID FORM

Date: _____
Project N^o: _____

The Secretary
Department of Education
DepEd Complex, Central Office
Meralco Avenue, Pasig City

Attention: The Chairperson
Bids and Awards Committee

Gentlemen and/or Ladies:

Having examined the Bidding Documents including Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to *[supply/deliver/perform]* *[description of the Goods]* in conformity with the said Bidding Documents for the sum of *[total Bid amount in words (and figures)]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we undertake to provide a performance security in the form, amounts, and within the times specified in the Bidding Documents.

We agree to abide by this Bid for the Bid Validity Period specified in BDS provision for ITB Clause 17.1 and 18.2, respectively, and it shall remain binding upon us and may be accepted at any time before the expiration of that bid validity period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements as per ITB Clause 5 of the Bidding Documents.

We likewise certify/confirm that the undersigned, *[for sole proprietorships, insert: as the owner and sole proprietor or authorized representative of Name of Bidder, has the full power and authority to participate, submit the bid, and to sign and execute the ensuing contract, on the latter's behalf for the Name of Project of the Name of the Procuring Entity] [for partnerships, corporations, cooperatives, or joint ventures, insert: is granted full power and authority by the Name of Bidder, to participate, submit the bid, and to sign and execute the ensuing contract on the latter's behalf for Name of Project of the Name of the Procuring Entity].*

We, further, confirm that, for purposes of this bid, and if such Bid is accepted, the address stated below shall be the Supplier's official address and contact numbers, as reflected in the *(state proof of billing e.g. PhilGEPS Certificate, Mayor's Permit, SEC, Tax Clearance)*

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Dated this _____ day of _____ 20_____.

[signature over printed name of
Authorized Representative]

[in the capacity of _____]
(designation of Authorized Representative)

Duly authorized to sign Bid for and on behalf of _____
[Registered Company/Business Name of the Bidder]

Address : _____ Telephone No : _____
Telefax: _____ Email address : _____

BANK GUARANTEE FORM FOR ADVANCE PAYMENT

To: **Department of Education**
[name of Contract]

Gentlemen and/or Ladies:

In accordance with the payment provision included in the Special Conditions of Contract, which amends Clause of the General Conditions of Contract to provide for advance payment, *[name and address of Supplier]* (hereinafter called the "Supplier") shall deposit with the PROCURING ENTITY a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

We, the *[bank or financial institution]*, as instructed by the Supplier, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the PROCURING ENTITY on its first demand without whatsoever right of objection on our part and without its first claim to the Supplier, in the amount not exceeding *[amount of guarantee in figures and words]*.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed thereunder or of any of the Contract documents which may be made between the PROCURING ENTITY and the Supplier, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[date]*.

Yours truly,

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]

SEALING AND MARKING OF BIDS

GOODS AND SERVICES

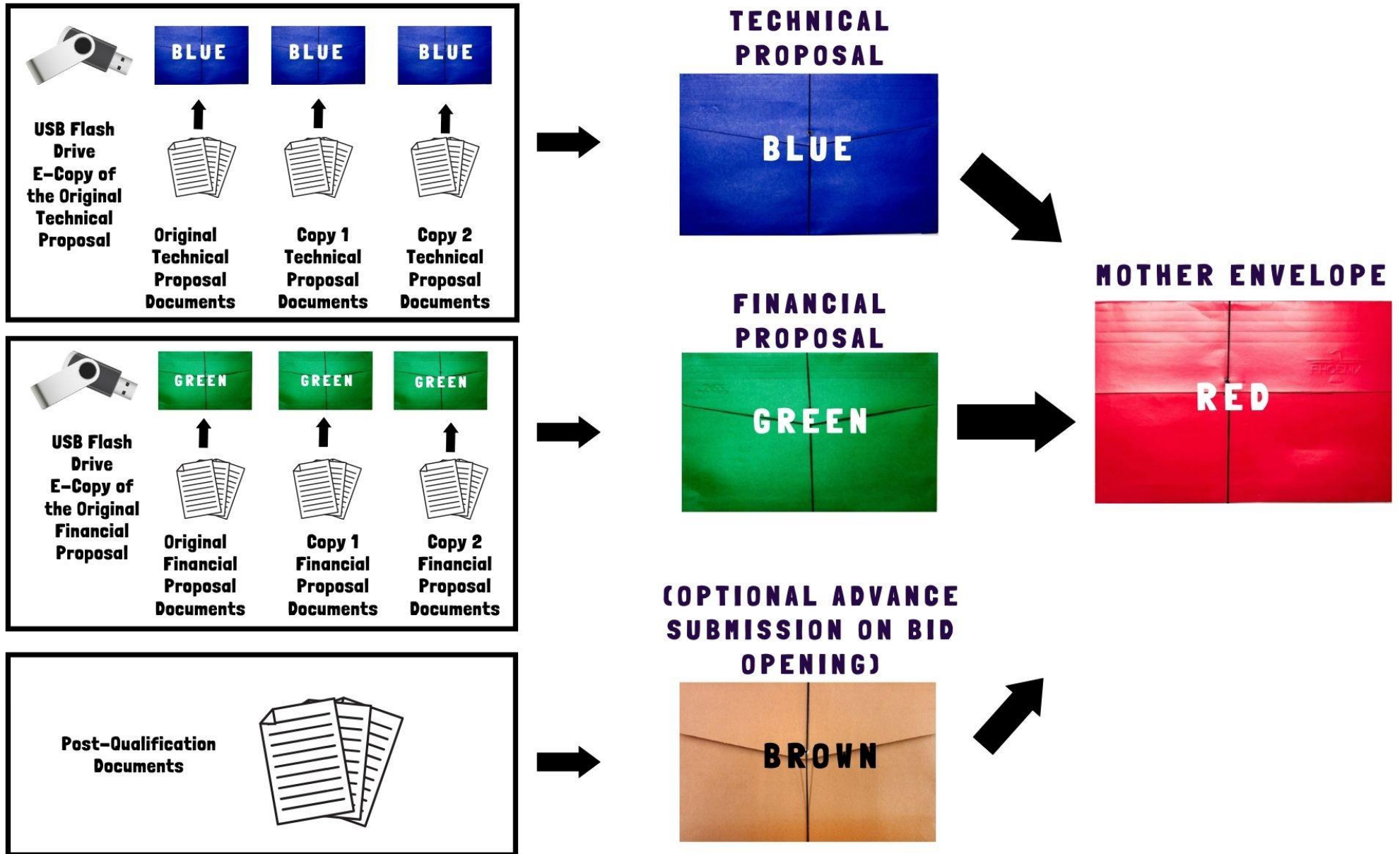


Illustration 1

ORIGINAL / COPY NO. ____

[BIDDER'S COMPANY NAME]

[COMPANY'S OFFICE ADDRESS] PUBLIC BIDDING:

[PROJECT TITLE]:

BIDDING FOR [no.] : [item description] (if applicable)

THE CHAIRPERSON BIDS AND AWARDS COMMITTEE
DEPARTMENT OF EDUCATION CENTRAL OFFICE
[VENUE OF BID OPENING]

DO NOT OPEN BEFORE [TIME AND DATE OF BID OPENING]

Republic of the Philippines



Government Procurement Policy Board