STATISTICAL OUTPUT REQUIREMENTS FOR THE 2024 NATIONAL ACHIEVEMENT TEST FOR GRADE 10 (NATG10)

Priority A

a.1. Master List of examinees by schools, individual raw score, mean raw score, mean percentage score by subject area and by 21st century skills.

a.3. Electronic file of Master List by Division. If the mode of administration is through census, the legislative district's Masterlist is also required.

a.4. School Header's data – crosstabs with frequency counts and percent, MPS by variable, by legislative district.

a.5. Quartile Distribution by School, Division and Region. If the mode of administration is through *census* the legislative district's Masterlist is also required.

a.6. Proficiency levels by school, division, and region by subject area and by 21st-century skills. If the mode of administration is through *census* the legislative district's Master list is also required.

Priority B

B.1. Frequency and percent distribution of total examinees.

b.1.1. Schools Division Offices (SDOs)
b.1.2. Regional Offices (ROs) - 17 Regions
b.1.3. National (overall total)

B.2. Frequency, percentage distribution and MPS, of demographic characteristics by 21st century skills of total examinees.

b.2.1. Gender
b.2.2. Municipality type (Rural, Urban)
b.2.3. Class Size
b.2.4. School Type
b.2.5. Legislative District
b.2.6. School Type (Public vs. Private)
b.2.7. Region
b.2.8. Division
b.2.9. Teacher given grades by subject.
b.2.10. EDQ Variables
b.2.11. School Header variables
b.2.12. IP
b.2.13. Type of Public School: Central, Non-Central, Vocational, TEI's, Madaris School
b.2.14. Type of Private School: Sectarian, Non-Sectarian, etc.

B.3. Regional and Division Level Analysis

b.3.1. Do the same as the foregoing for each of the Seventeen (17) Regions Examples (Sample Table) Regional N, Mean, Raw % Score, SD, Lowest and Highest and for each of the 5 tests and Overall Test

b.3.2. Division N, Mean (Raw and Percent) Scores, SD, Lowest and Highest scores per Test, for Overall Test

b.3.3. Mean, N, SD, by Subtest and for Total test by SCHOOL, DIVISION, and REGION Cluster

Descriptive Statistics for Total and Subtests by Cluster

School Cluster	N	MPS

Cluster 1		
Cluster 2		
Cluster 3		
Cluster 4		
Cluster 5		
Cluster 6		

Schools Scale:

Cluster	Schools with examinees of:
Cluster 1	**400 and above**
Cluster 2	**200 to 399**
Cluster 3	**100 - 199**
Cluster 4	**55 - 99**
Cluster 5	**20 - 54**
Cluster 6	**19 and below**

Division Scale:

Cluster	Divisions with examinees of:
Cluster 1	**10,001 and above**
Cluster 2	**5,001 to 10,000**
Cluster 3	**5,000 and below**

Regional Scale:

Cluster	Regions with examinees of:
Cluster 1	**100,001 and above**
Cluster 2	**75,000 to 100,000**
Cluster 3	**74,999 and below**

B.4. Three Year Trend using MPS by Subtest

b.4.1. Individual score represented by the highest and lowest Raw Score by subject area and Overall Test

b.4.2. Three Year trend using MPS by 21st century skills/subtest starting School Year 2016 – 2017

b.4.3. Frequency and Percentage **Distribution of Examinees** and School type based on the Criteria on **Proficiency Level** by subtest for English, Filipino, Mathematics, Araling Panlipunan, Science, and Overall Test.

b.4.4. Frequency and Percentage **Distribution of Schools** by type based on the criteria on **Achievement Level** by subtest for English, Filipino, Mathematics, Araling Panlipunan, Science, and Overall Test.

CRITERIA FOR PROFICIENCY LEVELS

PROFICIENCY LEVEL	
MPS	**Descriptive Equivalent**
90 – 100	*Highly Proficient*
75 - 89	*Proficient*
50 - 74	*Nearly Proficient*
25 - 49	*Low Proficient*
0 - 24	*Not Proficient*

CRITERIA FOR ACHIEVEMENT LEVEL

ACHIEVEMENT LEVEL	
MPS	**Descriptive Equivalent**
96 – 100	**Mastered**
86 – 95	**Closely Approximating Mastery**
66 – 85	**Moving Towards Mastery**
35 – 65	**Average Mastery**
15 – 34	**Low Mastery**
5 – 14	**Very Low Mastery**
0 – 4	**Absolutely No Mastery**

b.4.5. Frequency Distribution of Raw Scores and its Equivalent by subtest and Overall Test (e.g. Raw → PS → SS → PR and %) regardless if the mode of administration is sampling or census.

b.4.6. Regional Performance MPS by gender and overall N by 21ST CENTURY SKILLS MPS aggregated by subject area and Overall Test

b.4.7. Division Performance MPS by gender and overall N by 21ST CENTURY SKILLS MPS aggregated by subject area and Overall Test

b.4.8. Frequency and Percentage Distribution of scores based on the criteria on quartile distribution by:

      b.4.8.1. subject and overall test
      b.4.8.2. distribution of examines
      b.4.8.3. distribution of school
      b.4.8.4. distribution of division
      b.4.8.5. distribution of region

Quartile Distribution of Scores	
Quartile	**Descriptive Equivalent**
76 – 100	*Q1 Superior*
51 – 75	*Q2 Upper Average*
26 – 50	*Q3 Lower Average*
0 – 25	*Q4 Poor*

B.5. 21st century skills ranking based on Z-scores or percentile rank scores by subtest.

    b.5.1. Regions ranking
    b.5.2. Division with each Region
    b.5.3. Top 10 students by subtest based on $\sum$ of Scores of each student in the 5 subjects
    b.5.4. Top 10 divisions in Mean Percentage Score (MPS) by subject area and Overall Test
    b.5.5. Top 10 students in Percentage/Z Score obtained in Math
    b.5.6. Top 10 students in Percentage/Z Score obtained in Science
    b.5.7. Top 10 students in Percentage/Z Score obtained in English
    b.5.8. Top 10 students in Percentage/Z Score obtained in Filipino
    b.5.9. Top 10 students in Percentage/Z Score obtained in HeKaSi
    b.5.10. Top 10 students Overall Z Score
    b.5.11. Top 10 schools based on MPS obtained by enrolment size

Priority C

C.1. Information dissemination through submission of compact disk per region (17 regions) and divisions (225 divisions) which includes:

        c.1.1. IPP per school and its respective divisions (for SDO's copy)
        c.1.2. IPP per school, division, and region (for RO's copy)
        c.1.3. IPP per school, division, region, and national (BEA copy)

1. Electronic copy of the Graphical Presentation of Percentage of Correct Response (PCR) by 21st century skills vis a vis by its subject area and proficiency levels through regional and national performance.

2. Electronic copies of Institutional Performance profile (IPP) by Division. The IPP contains the subject area and overall test MPS and SD. (Division, Region, and National Performance should appear after the last school of the division)

3. Electronic copies of Institutional Performance profile (IPP) by School. The IPP contains the English, Filipino, Aralin Panlipunan, Science, Mathematics and Overall Test (MPS and SD) by 21st CS. (Division, Region, and National Performance should appear after the last school of the division)

Priority D:

D.1. GUIDELINES FOR GENERATING INFERENTIAL STATISTICS

Stage 1 → 10 Regions:

        Regions I, III, IV-A, V and NCR – Luzon
        Regions VI, NIR and VII – Visayas
        Regions X, XII – Mindanao

Stage 2 → Division Level – 4 division per region

        Cluster 1 – per region
        Cluster 2 – per region
        Cluster 3 – per region
        Cluster 4 – per region

Stage 3 → School Level

        Elementary School – Public
            2 Central Schools
            1 Non-Central School
            1 Multi-Grade

        Elementary School – Private
            1 Sectarian
            1 Non-Sectarian

Stage 4 → 80 – 100 students per school
- Male – Female almost equal distribution

Stage 5 → All variables indicated on Priority B.2.

D.2. Comparison and Inferential Statistics per Subject and 21st century skills.

D.2.1. T-test of differences on means or ANOVA and Chi-Square by Percentile Grouping

d.2.1.1. Gender

Sample table (for total examinees): t-test of difference of Means of Males vs. Females by subtests (Region I)

Test	Mean Score		Std. Deviation		Diff. between means	t-ratio/ F – ratio	Probability
	Male	Female	Male	Female			
Math							
Science							
English							
Filipino							
Aralin Panlipunan							
Total Test							

CHI–SQUARE BY PERCENTILE GROUPING

Variable Labels	PERCENTILE GROUPING IN MPS								
	20 & below	21-29	30-40	41-50	51-60	61-70	71-80	81-90	91-99

d.2.1.2. Do the same as of # 3.1 for each of the 17 other Regions

d.2.1.3. Do the same for:

d.2.1.3.1. Community type (urban vs. rural) for whole population
d.2.1.3.2. Madrasah vs. Non Madrasah
d.2.1.3.3. Special Science Classes vs. Non- Special Science Classes

D.3. Correlation and Regression Analysis

D.3.1. Inter-correlation Analysis by subject test scores and 21st century skills

D.3.2. Correlations between 21st century skills score on 5 subtests and total test with some examinee characteristics
d.3.2.1. Gender
d.3.2.2. Cluster Type
d.3.2.3. School Type
d.3.2.4. Number of Siblings
d.3.2.5. Community Type
d.3.2.6. Teacher-given grades in
➢ Math
➢ Science

> ➢ English
> ➢ Filipino
> ➢ Aralin Panlipunan

   d.3.2.7. Madrasah
   d.3.2.8. IP
   d.3.2.9. SPED

    d.3.3. Split-half reliability coefficient for each of the 5 subtests and Total tests GSA & TVA
    d.3.4. Kuder-Richardson alpha Reliability

D.4. One-way ANALYSIS OF VARIANCE OF scores on each of the 5 subtests of NAT based on the overall 21st century skills raw data.

    d.4.1. Across the 17 regions
    d.4.2. Across the 3 cluster types
    d.4.3. If F is significant in the one-way ANOVA and D.2 has a significant relationship, do a test or Schiff test of Duncan test on the data to identify significantly different group.

D.5. Test Validation and Development

➢ **Classical Test Theory (CTT)**

  D.5.1. Item Analysis and Item Validation Tests

    d.5.1.1. Do an item analysis of each of the 5 subtests to produce the following facility:

      d.5.1.1.1. Facility/difficulty indices
      d.5.1.1.2. Discrimination indices
      d.5.1.1.3. Frequency of choosers per option (option analysis)

  D.5.2. If possible, print out an item analysis matrix like the following for each of the subject areas.

Table ___: Item Analysis Index for subtests

Discrimination Index (DI)

Facility Level (%)	$\leq$ .00	.01 - .15	.16 – .30	.31 -.45	.46 - .60	$\geq$.61 and above	Total No. of Items
81 – 100							
61 – 80							
41 – 60							
21 – 40							
0 – 20							
Total Items							

Where: $F1 = \dfrac{\mu\ -l}{(U + L)} \times 100\%$ $D.I = \dfrac{\mu\ -l}{U}$

Where: μ – number of examinees among the highest scoring 27% of the ranked Distribution who answered the item correctly

l – number of examinees in the L group who answered the item correctly

U – number of examinees in the top 27% of the test takers

L – number of examinees in the bottom 27% of the test takers

Note: $U = L$

F1 - Facility Index

DI – Discrimination Index

D.5.2. Generate an Item Analysis Report for the National Achievement Test for Grade 10 (NATG10) following the **Classical Test Theory Approach (CTT).**

D.5.3. Generate the R Markdown report following the **Item Response Theory (IRT)** approach, which deals primarily with the following:

- IRT ability measures
- IRT item difficulty
- IRT test reliability
- IRT Item Discrimination
- Parallel ICCs
- WrightMap
- IRT item analysis
- R markdown

Conditions:

- *All data/statistical outputs required by the BEA should also be in electronic files and submitted to the BEA.*
- *Computed and validated data files of scanned data (includes scores of each subtest, division, and region code) should be submitted to BEA*
- *The code book should be submitted to BEA as well. This book should encompass the full terms of the codes used, along with definitions of terms/variables/data generated. Additionally, it should provide an explanation of how these elements were computed. (SAMPLE: **Code:** MPS; **Complete Term:** Mean Percentage Score; **Definition:** This term pertains to the average mean of the percentage scores achieved by a group of individuals or participants in the NAT. It is calculated by summing up the individual percentage scores and then dividing by the total number of individuals.)*
- ***Any statistical data not indicated herein but emerged as necessary should also be generated.***