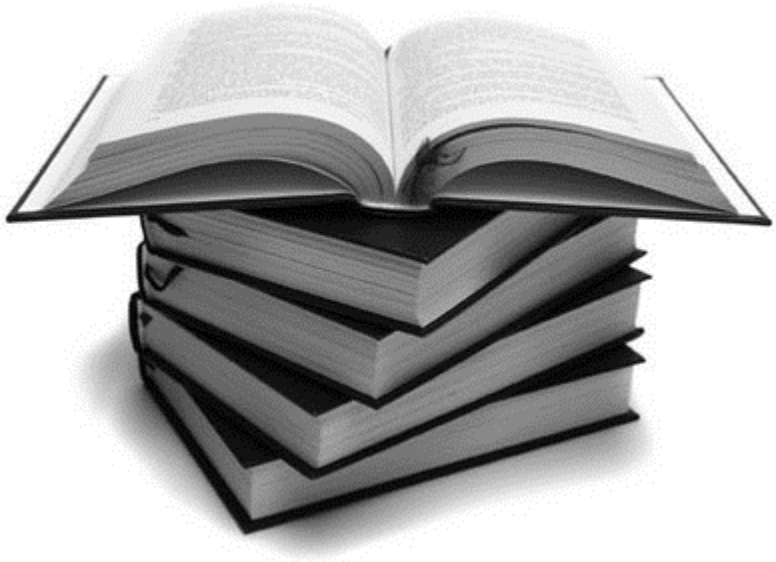
# MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

# DOMINICA

## CURRICULUM, MEASUREMENT AND EVALUATION UNIT



# REPORT ON CANDIDATE'S PERFORMANCE AT THE 2012 GRADE SIX NATIONAL ASSESSMENTS (G6NA)

# 1 Administration and Entry

## 1.1 Introduction

The Grade Six National Assessment (G6NA) forms part of the National Assessment Programme comprising of the Grade Two National Assessment, the Grade Four National Assessment and the Grade Six National Assessment. The NAP is aimed at determining how students are learning at key stages throughout the primary level and their readiness to access secondary level education.

Unlike the Grades two and four national assessments which are meant to be diagnostic, the Grade Six National Assessment is a high stakes test of achievement. The major purposes of the G6NA are to:

- select high performing students for the award of scholarships or bursaries and
- monitor levels of achievement across the education system.

As such the use of this examination to assess students' achievement at the end of primary school is limited.

A considerable amount of data is collected by the annual administration of the G6NA and it would appear inappropriate not to use it to give the much-requested feedback to teachers and principals. The purpose of this report, then, is to provide schools with this information on student performance so that they may strive to improve their performance based on the feedback given. The report concentrates on the general strengths and weaknesses observed nationally among students in the different subject areas assessed.

Principals and instructional support teams are urged to study the report carefully together with the individual school reports. These reports should indicate the areas the school may wish to focus on and will be of assistance in the construction phase of the school improvement plan. Appendix C shows a complete list of the facility indices (i.e. the percent of students who got an item correct) for each question on each of the four multiple-choice papers. Principals, grade 6 teachers and others may wish to review the percent correct alongside the actual question papers (enclosed) to get a good idea of national strengths and weaknesses of grade 6 students.

## 1.2 Overview of the test development process.

The technical development of the examination was shared by the subject committees and the CMEU. The subject committees were responsible for examination content and ensuring that key aspects of the subjects were tested. The personnel of the CMEU assisted the committees with item editing and statistical issues.

There are four major areas in the test development process:

(a) preparation of the test plan
(b) development of test blueprint or test specifications
(c) item development
(d) test construction

The test plan looks at the purpose and major curriculum objectives of the test. Test format is developed after consideration of the age of students, curriculum objectives, scoring methods etc. Content and cognitive domains to be tested were then defined. With these domains defined, tables of specifications for the four subject areas examined were drawn up and circulated to schools.

Item development followed from the table of specifications. For each content area examined the specific objectives tested were determined by the subject committees. The committees also determined the cognitive level at which these objectives were to be tested. Experienced upper grade teachers were contacted and asked to submit items according to the specifications sent to them in the different subject areas. A large number of the items written were then pilot tested. Analysis of the items and the associated item statistics were used to help the chairpersons of the subject committees and the CMEU to make the final test selections. The typed final test forms were then reviewed to eliminate typographical and other errors.

**Table 1: Structure of the G6NA**

| Subject | Type of Item | No. of Items | Duration |
|---|---|---|---|
| **Language Arts** | • Multiple Choice *Computer marked*<br>• Essay *Specialized team marking* | 60<br><br>3 topics given to select 1 | 90 mins |
| **Mathematics** | Multiple Choice *Computer marked* | 60 items | 90 mins |
| **Science** | Multiple Choice *Computer marked* | 50 items | 75 mins |
| **Social Studies** | Multiple Choice *Computer marked* | 50 items | 75 mins |

## 1.3 Administration

The test was done over a two-day period under strict examination conditions. Exam supervisors were trained during a half-day workshop one week prior to the examination. Supervisors were given copies of the exam regulations and detailed instructions regarding the conduct of the examinations. The 2012 G6NA was administered on the 24th and 25th May at a total of 52 centres with over 100 teachers acting as supervisors and assistants. Supervisors reported few problems in the administration of the exams and generally commended students for their good behaviour.

## 1.4 Entry

1204 students were registered for the 2012 G6NA but only 1191 actually took the exam (see table 2).

**Table 2. Common Entrance Entry 1998 - 2012**

| Entry Year | Boys | Girls | Total |
|---|---|---|---|
| 2000 | 834 | 861 | 1695 |
| 2001 | 834 | 878 | 1712 |
| 2002 | 834 | 757 | 1591 |
| 2003 | 821 | 722 | 1543 |
| 2004 | 810 | 774 | 1584 |
| 2005 | 772 | 774 | 1546 |
| 2006 | 700 | 657 | 1357 |
| 2007 | 696 | 661 | 1357 |
| 2008 | 615 | 620 | 1235 |
| 2009 | 604 | 548 | 1152 |
| 2010 | 533 | 517 | 1050 |
| 2011 | 539 | 606 | 1145 |
| 2012 | 609 | 595 | 1204 |

Of the 1204 students who were registered for the 2012 G6NA, almost half (48.6%) were from primary feeder schools that accessed the Roseau catchment area. Table 3 shows the distribution of candidates by catchment area.

**Table 3. Distribution of candidates by catchment area and gender**

| Gender | Roseau | ITSS | PSS | NECS | CBSS | PCSS | Totals |
|---|---|---|---|---|---|---|---|
| **Boys** | 302 | 56 | 84 | 80 | 52 | 35 | 609 (50.6%) |
| **Girls** | 304 | 62 | 86 | 74 | 34 | 35 | 595 (49.4%) |
| **Totals** | 606 (50.3%) | 118 (9.8%) | 170 (14.1%) | 154 (12.8%) | 86 (7.1%) | 70 (5.8%) | 1204 |

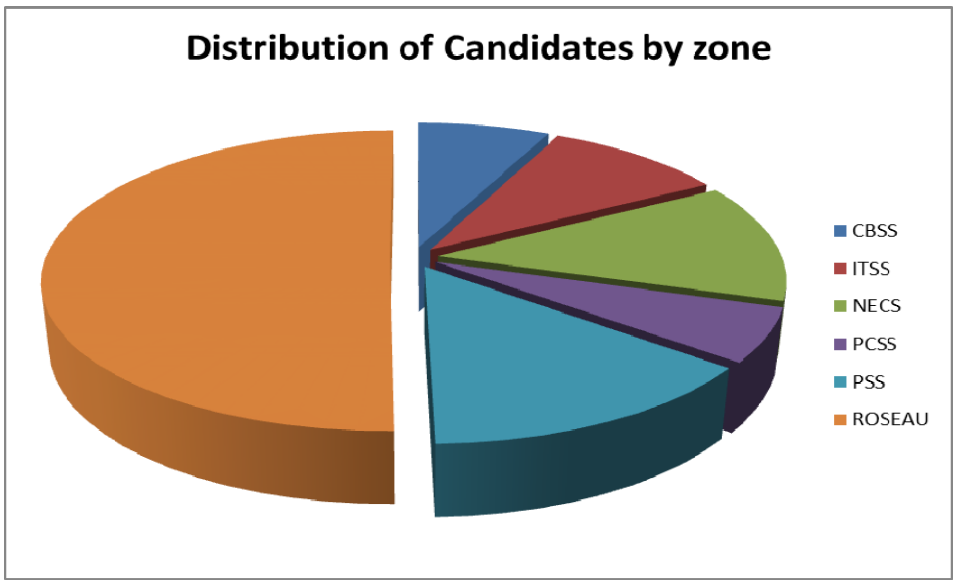



*Fig 1. Distribution of candidates by zone*

### 1.5 Marking

The composition scripts were marked over a three-day period by a team of 20 primary teachers under the supervision of Mr. Robert Guiste and Mr. Nicholas Goldberg. This allowed scripts to be double-marked and in some cases, triple marked, thus increasing the reliability of scoring. The scoring criteria for the compositions are given in Appendix A.

The Unit's optical mark reader (OMR) facilitated data entry. Generally, it took about one hour to enter and for the computer to read 11192 answer sheets, so that data entry was completed within one week as compared to the three weeks when done by hand. Accuracy was also enhanced, though care was taken to 'clean' the answer sheets, as unintended pencil marked scripts were rejected by the OMR. In a few instances supervisors had made errors in entering a candidate's number correctly. These errors were picked up during 'cleaning' or were apparent on data entry.

# 2. Results

### 2.1 National Mean and Measurement Error

Results of the G6NA are reported based on the following

| Score | Grade | Interpretation |
|---|---|---|
| 120+ | A | Detailed knowledge of subject area |
| 110-119 | B | good knowledge of most aspects of subject area |
| 90.109 | C | good knowledge of some aspects of subject area |
| 80-89 | D | fair knowledge of some aspects of subject area |
| Below 90 | E | limited knowledge of a few aspects of subject area. |

The adoption of a grading system where students receive grades in the four subjects assessed should allow parents to more easily gauge the progress of their children at the end of primary school.

It is unlikely that a student writing the same exam on different days would obtain the same scores. It is even more improbable that scores would be the same if a parallel test was administered or a different sample of items was tested. The variation in scores owing to these factors is known as measurement error. Measurement error essentially depends on the reliability of the tests. The reliability of all the multiple-choice tests was high (Cronbach alpha greater than 0.9). The consequent measurement error in most of the G6NA multiple-choice tests was about 5. Thus, the 'true' score of a student scoring 100 on one of the tests could be anywhere between 95 - 105. This should be borne in mind when interpreting the score of individual students.

## 2.2 Overall Performance by Catchment and Gender

Mean standardised scores in the five papers (Language Arts, Composition, Mathematics, Social Studies and Science) written by candidates were examined. Table 8 shows these scores by catchment area.

***Table 8. Mean standardised scores by catchment area and gender***

| Subject | Roseau | | ITSS | | PSS | | NECS | | CBSS | | PCSS | | ALL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys |
| **Language** | 105 | 98 | 104 | 97 | 103 | 97 | 100 | 93 | 98 | 98 | 102 | 85 | 102 | 97 |
| **Mathematics** | 103 | 98 | 101 | 100 | 102 | 99 | 97 | 100 | 95 | 100 | 102 | 93 | 100 | 98 |
| **Science** | 102 | 99 | 102 | 99 | 103 | 100 | 97 | 96 | 97 | 101 | 101 | 93 | 100 | 98 |
| **Social Studies** | 104 | 98 | 103 | 100 | 105 | 98 | 100 | 95 | 96 | 98 | 101 | 89 | 102 | 97 |
| **ALL** | 104 | 98 | 103 | 99 | 103 | 99 | 99 | 96 | 97 | 99 | 102 | 90 | 101 | 98 |

As in previous years, and in all of the papers, girls outperformed boys. The gender gap still favours the girls over the boys and the results continue to be mediated by location. Girls, on average, scored about 3.5% more than boys in these areas. This is about half the 2010 margin (6.2%). **It should be noted however, that 1.) Boys in the NECS area performed better in mathematics than the girls; and 2.) the boys in the CBSS area outperformed the girls.**

Location also impacted on the results. Performance in the North East Comprehensive, Castle Bruce and Pierre Charles Secondary (Grand Bay) catchment areas remains below the national average.

Scores for the male students in the ITSS, PSS and CBSS areas were on average higher than in other parts.

***Appendix D gives a breakdown of the grades received by district.***

## 2.3 Selection of Students for Secondary Education

As of 2005 all of the students who wrote the G6NA, were selected for secondary education. Table 9 shows the numbers selected over the past fifteen years.

**Table 9. Number of students selected for secondary school 1995 - 2010 by gender**

| Year | No. Boys selected | % Boys selected | No. Girls selected | % Girls selected | Total selected | % Cohort writing exam |
|---|---|---|---|---|---|---|
| **2002** | 641 | 49 | 667 | 51 | 1308 | 82.2 |
| **2003** | 656 | 50.5 | 643 | 49.5 | 1299 | 84.2 |
| **2004** | 700 | 100 | 724 | 100 | 1424 | 89.9 |
| **2005** | 772 | 100 | 774 | 100 | 1546 | 100 |
| **2006** | 700 | 100 | 657 | 100 | 1357 | 100 |
| **2007** | 691 | 100 | 651 | 100 | 1342 | 100 |
| **2008** | 607 | 100 | 618 | 100 | 1225 | 100 |
| **2009** | 598 | 100 | 547 | 100 | 1145 | 100 |
| **2010** | 533 | 100 | 517 | 100 | 1050 | 100 |
| **2011** | 539 | 100 | 606 | 100 | 1145 | 100 |
| **2012** | 609 | 100 | 595 | 100 | 1191 | 100 |

Students are selected for secondary education by catchment area. Universal Secondary Education is now in operation in all six zones.

**Table 10. Number selected for secondary education by catchment area**

| Zone (Catchment area) | Secondary places available | No. entered | Percent selected from zone |
|---|---|---|---|
| **Roseau** | 601 | 601 | **100** |
| **PCSS** | 68 | 68 | **100** |
| **NECS** | 151 | 151 | **100** |
| **ITSS** | 116 | 116 | **100** |
| **Portsmouth** | 169 | 169 | **100** |
| **Castle Bruce** | 86 | 86 | **100** |
| **TOTALS** | **1191** | **1191** | **100** |

Overall selection rates to secondary school is at 100% since the country moved towards government's stated goal of universal secondary education, see Figure 1.

## 2.4 Award of scholarships

This year government awarded a total of 94 scholarships and 115 bursaries to students. As Figure 2 demonstrates the distribution of the 250 highest performing students is dependent on location and gender.

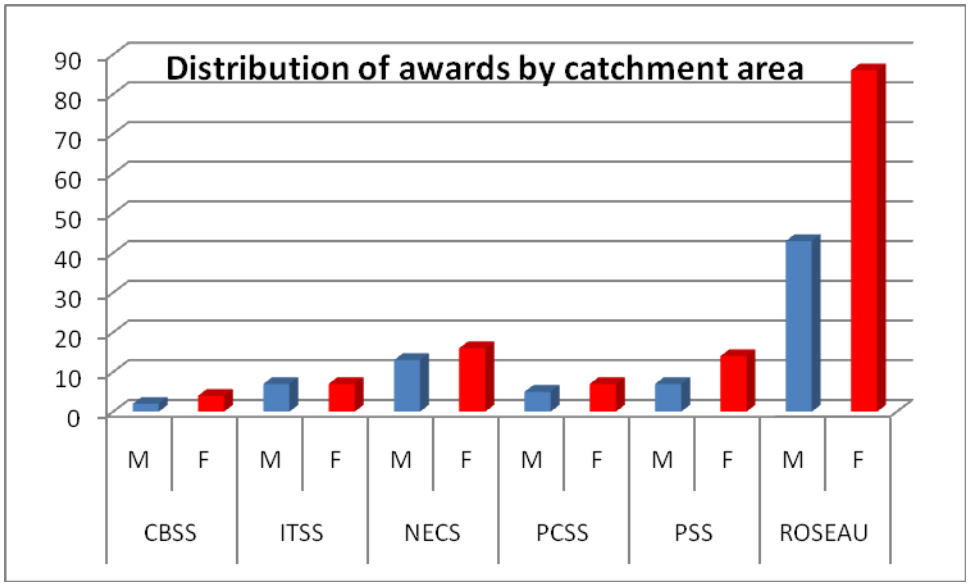



*Fig. 2 – Distribution of awards by catchment area.*

64% of the top 200 students were girls while 64% of those girls were from the Roseau catchment area.

## 2.5 Weak performance

Students who obtained a total of eight points or less (i.e. scored at best, 1C, 2 D's and 1E or equivalent) can be considered as having some serious learning problems. 15.6% of the entry (186 students) obtained such grades in the 2012 examinations. In many cases these learning problems are related to student reading difficulties. 124 boys (121 in 2011) and 62 girls (59 in 2011) fell in this region.

More details can be found in the attached CMEU's "**Performance of Primary Schools at the 2012 Grade Six National Assessment by District"**

# 3 Subject Reports

## 3.1 Language Arts

The national mean raw score in the language arts multiple-choice paper was 35 (60%) with 13% (8% in 2011 and 7% in 2010) of the entrants scoring less than 24 (40%). 27% (37% in 2011 and 44% in 2010) of the candidates scored 45 (75%) or more. This represents a 10% decline over the 2011 results. 23 students (15 in 2011, 19 in 2010) scored 15 items or less correctly i.e. scores that could be achieved by guessing, this suggests that these students have considerable language difficulties and are possibly, unable to read.

The paper assessed six areas of language performance viz:

### 3.1.1 Usage and grammar

The mean in the Usage and Grammar section was 67 % (78% in 2011). Question 4, 6 and 7 proved to be challenging for the students. The facility indices on these questions were 54%, 35% and 43% respectively. For item #4, 32% selected C "to many" as their response. 36% selected B for item #6.

| Item No. | Item | Percent Correct |
|---|---|---|
| 4 | There are _____ desks packed in that small room.<br><br>A. too many.<br>B. to much.<br>C. to many.<br>D. too much. | 54% |
| 6 | **Select the letter which corresponds to the sentence that is grammatically correct.**<br><br>A. One of the boys are on the playing field.<br>B. One of the boys were on the playing field. (36%)<br>C. One of the boys is on the playing field.<br>D. One of the boys did on the playing field. | 35 |
| 7 | **Which part of speech is the underlined word in question**<br><br>Despite the bad weather, the rescue team fought **<u>bravely</u>** to save their friend.<br><br>A. Adjective (44%)<br>B. adverb<br>C. noun<br>D. verb | 43 |

### 3.1.2 Vocabulary

This section was not handled as well as in previous years. The mean score on this section was only 67% as compared to 78% in 2011. Only 1 question was answered correctly by over 60% of the students.

### 3.1.3 Spelling

While the mean was higher than last year's, students encountered some difficulty with the spelling section. The mean was 67%, as compared to 56% in 2011 and over 75% in 2010. Only 27% of the students answered item 12 correctly and 48% answered item 13 correctly.

| Item No. | Item | Percent Correct |
|---|---|---|
| 12 | **Select the word which is CORRECTLY spelt.**<br><br>A. occurence<br>B. occurrence<br>C. occurance (46%)<br>D. ocurence | 27 |
| 13 | A. cortion<br>B. fourward<br>C. immidiately (39%)<br>D. athlete | 48 |

### 3.1.4 Study Skills

This section was handled better than the 2011 cohort. 68% of the students responded correctly to the questions in this section. Questions 31, 35 and 36 were answered correctly by less than 50% of the candidates.

| Item No. | Item | Percent Correct |
|---|---|---|
| 31 | Which word would fall between **degree** and **dehydrate**?<br><br>A. degauss<br>B. degrade<br>C. degust (35%)<br>D. dehydration | 43 |
| 35/36 | See items in enclosed test booklet. | 25/49 |

### 3.1.5 Comprehension

Students continue to struggle with the comprehension section of the exam. The mean score for the comprehension section was 60% (65% in 2011). This section consisted of a **Newspaper article, a poem, a recipe and a narrative.**

Students performed best on the recipe although only about 67% of the students were able to handle this section with ease. The mean scores for the, the poem, the newspaper article and the narrative were 58%, 63% and 51% respectively.

Twelve of the 24 questions were answered incorrectly by over 45% of the students.

## 3.2 Composition

Three choices of topics were given to students:

1. **Why my mom or dad is the greatest.**

2. **I would like to invent a machine that…(continue)**

3. **Each year thousands of tourists visit Dominica. Write in your own words why you think so many people come to Dominica for their vacation.**

The following five criteria were used for the grading of the compositions: General Impression/Organization, Relevance, Usage and Spelling, Sentence Structure, Capitalization and Punctuation (See Appendix A).

The mean score for the composition was 59%, (62% in 2011; 58% in 2010). The minimum score was 5/40. 32 students attained such scores (15 students in 2011). The maximum score was 39/40 (2 students). 179 students (226 in 2011) obtained scores greater than 80% (32/40) while 44 students (28 in 2011) scored less than 20% (8/40 or less) which seem to indicate that they are operating at about the K level. 194 students (16%) scored 40% or less in the composition and 314 students (24%) were in the low category – scoring 19 or less out of 40. These results show a significant improvement in writing over the previous years.

### 3.2.1 Strengths

Markers continue to note the following strengths in good compositions:

- Generally students were able to express themselves clearly.
- Very creative interpretations were given to many of the essays.
- Generally students stayed on topics and handled them quite well.
- Events, for the most part, were properly sequenced and detailed.

### 3.2.2 Areas for improvements

On the other hand many essays continue to show deficiencies in the following areas:

- Poor mechanics - spelling, punctuation and capital letters and grammar
- Usage needs to improve, the students need to learn new words and write at the level of Grade 6 and above.
- A lack of variety in sentences shows that students have not learned sentences structure and use of prepositions to join sentences sufficiently.
- Inattention to paragraphs continues to be a major problem. Many students' essays consisted of one very long paragraph.
- Insufficient use of descriptive words
- Students still have problems with subject/verb agreement
- Many students did not seem to understand what was required of them.

Generally, the weaker compositions were brief and to the point. Some writers had nothing to show, and some, though very few, still are not even to the level of grade K students.

## 3.3 Recommendations for the teaching of writing

The recommendations from previous years need to be reiterated.

1. **Encourage more oral work** – public speaking, story telling etc. in the classroom. Provide many opportunities for students to write daily.
2. **Have students collect photos and write about it.**
3. **Encourage journal writing**
4. **Place more emphasis on organisation and relevance** - reflect this emphasis when scoring written work.
5. **Encourage peer editing and assessment.**
6. **Encourage students to read more**, this should help them to model the language and style of a variety of authors.
7. **Give regular writing practice (at least twice a week).** Get students to write on a variety of topics using a variety of forms e.g. narrative, description, letter etc. Explain the meaning of key words such as describe, explain, imagine, write, tell etc
8. **Teach the basics** - a good introduction, good follow up sentences and a good conclusion.
9. **Teach the writing process** - **drafting** (key ideas and sequence), **writing**, **editing** and **rewriting**. In class award marks for drafts and rewrites. Let students read their efforts to the class and display the final products in the classroom.

Students must be made to read and write more and practise writing compositions of various types. Descriptive writing should allow students to make use of adjectives, and verb tenses in the context of the writing task. It is also very important that the students are encouraged to use the **Writing Process**.

## 3.4 Mathematics

The national mean raw score in mathematics was 40 (out of 60) or 66% (60% in 2010) with 2.3% (5% in 2010) of the entrants scoring less than 15 (25%) and 41% (25% in 2010) scoring 45 (75%) or more.

Students' knowledge and problem solving ability in the areas of number concepts and operations, measurement, geometry, patterns, functions & algebra were tested. Problem solving was incorporated into every section of the paper.

### 3.4.1 Number concepts and operations

This section included topics such as number concepts, operations, fractions and decimals. The mean score for this section was 66% (66% in 2010). 8 of the 30 questions were answered correctly by less than 50% of the students. Items 3, 9, 10, 11, 25, 26, 28 and 29 were all answered incorrectly by more than half the respondents. For item #3, 25% of the students indicated that we round off numbers when we want to count fast.

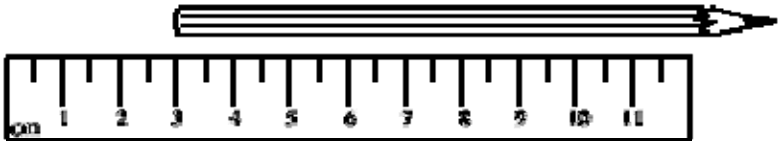
| Item No. | Item | Percent Correct |
|---|---|---|
| 3 | In which situation is it best to round off numbers?<br><br>A. When giving your age to your doctor<br>B. When measuring the space for a door<br>C. When doing groceries at the supermarket<br>D. Whenever we want to count fast (25%) | 36 |
| 9, 10, 11 | See attached test booklet for items 9, 10 and 11 | (9) 42%, (10) 37%, (11) 31% |
| 25 | 2. Mary and Sam ate $\frac{3}{10}$ of a pizza each. Afterwards, Mark ate $\frac{2}{10}$ of that same pizza. How much pizza is left?<br><br>A. $\frac{2}{5}$<br>B. $\frac{2}{10}$<br>C. $\frac{1}{2}$<br>D. $\frac{8}{10}$ | 31 |
| | | |

| | | | |
|---|---|---|---|
| 26 | 3. | $\frac{4}{5}$ , $\frac{3}{8}$, $\frac{2}{4}$, $\frac{1}{9}$ written in ascending order is<br><br>A. $^4/_5$ , $^2/_4$, $^3/_8$ , $^1/_9$<br>B. $^4/_5$ , $^3/_8$ , $^2/_4$ , $^1/_9$<br>C. $^1/_9$ , $^3/_8$ , $^2/_4$, $^4/_5$<br>D. $^4/_5$ , $^3/_8$ , $^2/_4$ , $^1/_9$ | 47 |
| 28 | 4. | Which of the decimals below is closest to 1?<br><br>A. 0.01 (37%)<br>B. 0.2 (34%)<br>C. 0.3<br>D. 0.6 | 28 |
| 29 | 5. | Convert $3\frac{2}{7}$ to an improper fraction<br><br>A. $\frac{5}{7}$ (51% selected option A)<br>B. $\frac{23}{7}$<br>C. $\frac{27}{3}$<br>D. $\frac{32}{7}$ | 29 |

As can be seen, students experience difficulties when working with fractions and decimals and when solving mathematical problems. The overall average for the items dealing with fractions was only 46%.

### 3.4.2 Measurement

Students continue to show poor performance in the area of measurement. They experienced most problems with this section. The average score was 48% (58% in 2011; 53% in 2010). Eight of the 15 questions in this section were answered correctly by less than half of the candidates. Less than half the candidates answered items 33, 35, 37, 38, 39, 41, 42, and 43 correctly.

| Item No. | Item | Percent Correct |
|---|---|---|
| 33 | A thin wire 20 centimetres long is formed into a rectangle. If the width of this rectangle is 4 centimetres, what is its length?<br><br>A. 5 centimetres (32%)<br>B. 6 centimetres<br>C. 12 centimetres<br>D. 16 centimetres | 33 |
| 35 |  <br>1. Which of these is closest to the length of the pencil in the figure?<br><br>A. 9 cm (38% selected A)<br>**B. 10 cm**<br>C. 11 cm<br>D. 13 cm | 21 |
| 37 | A school needs to build a fence around its playing field. The field is 42 metres long and 21 metres wide. How much fencing will be needed?<br><br>A. 21 m<br>B. 63 m (43% selection)<br>C. 126 m<br>D. 882 m | 33 |
| 38 | See attached test booklet | 26 |

| | | |
|---|---|---|
| 39 | Farmer Ken has a rectangular plot of land. The area of the land is 144 $m^2$. If one side is 16 m long, what is the length of the other side?<br><br>A. 9 m<br>B. 128 m<br>C. 160 m<br>D. 2304 m | 49 |
| 41 | Javis bought 9 pounds of beef at $7.25 per pound. He gave 2 coupons to the clerk and saved $8.35 on his purchase. How much did he pay altogether?<br><br>E. $1.10<br>F. $15.60<br>G. $56.90<br>H. $65.25 | 31 |

It is clear that students had issues with problem solving and mathematical comprehension. Hence, teachers should place greater emphasis on the problem solving and assist students with problem solving procedures.

### 3.4.3 Statistics and data handling

Unlike, previous years, students performed well in the area of statistics and data handling. The mean for this section is 73%. Only one question was answered by less than 50% of the students.

| | | |
|---|---|---|
| 53 | See attached test booklet. | 47 |

## 3.5 Science

The national mean raw score in science was 30 or 60% *(69 in 2011)* 13%. of the entrants scored 20 or less (4. 9% in 2011; 9% in 2010) and 14% (28% in 2011; 26% in 2010), scored 40 (80%) or more. The paper was divided into the four sub-areas of life processes, earth & space and the physical sciences and agriculture.

### 3.5.1 Life Processes

The average for this section was 62% (71.6% in 2011; 67% in 2010). Four questions were answered incorrectly by more than 50% of the candidates. In fact, 71% of the candidates answered item 6 incorrectly and 69% answered item 14 incorrectly.

| Item No. | Item | Percent Correct |
|---|---|---|
| 6 | Which animal competes with the frog for food?<br>(see diagram in test booklet)<br><br>A. rooster<br>B. earthworm<br>C. snake<br>D. lizard | 29 |
| 14 | What is responsible for picking up the oxygen in lungs and carrying it to all the body cells that need it?<br><br>A. Red blood cells<br>B. White blood cells<br>C. Veins<br>D. Arteries (also 31%) | 31 |

### 3.5.2 Earth and Space,

The mean for this section was 61% (70% in 2011; 66% in 2010) with three of the 10 questions (17, 21 and 23) being answered correctly by less than 50% of the respondents.

| Item No. | Item | Percent Correct |
|---|---|---|
| 17 | Which of these is the quickest way to dry a white shirt?<br><br>A. leave it in a warm shady area<br>B. hang it up in your bathroom<br>C. stretch it out on the top of a fence<br>D. throw it out into the sunlight | 48 |

| | | |
|---|---|---|
| 21 | How long does it take the moon to travel around the earth?<br><br>A. 1 day (39% selected A)<br>B. 2 week<br>C. 27 days (29%)<br>D. 1 year (29%) | 29 |

### 3.5.3 Physical Sciences

This average on this section was also 61%. Four of the questions proved to be a bit challenging for the students. Items 32, 33, 37 and 40 were answered incorrectly by more than 50% of the candidates.

| Item No. | Item | Percent Correct |
|---|---|---|
| 32/33 | **(See questions in attached test booklet)** | 39 each |
| 37 | Which state of matter has a definite volume but NO definite shape?<br><br>A. solid<br>B. liquid<br>C. gas<br>D. plasma | 39 |

### 3.5.4 Agriculture

Again students did not perform very well on this section. Only about 56% (58% in 2011) of the students handled this section with relative ease. Four of the 10 questions were answered incorrectly by over 50% of the students. Only 28% of the students answered item 46 correctly while 84% of the students answered item 49 incorrectly.

| Item No. | Item | Percent Correct |
|---|---|---|
| 46 | Which of these would compete with a farmer's crops for important nutrients?<br><br>A. elephant grass<br>B. pests<br>C. birds<br>D. rodent | 28 |

| | | |
|---|---|---|
| 49 | Which of these is a disease which affects pigs?<br><br>A. Foot and mouth<br>B. pox<br>C. rabies (35%)<br>D. scurvy (35%) | (16%) |

While the National Curriculum may make reference to fish under the agriculture section, teachers are allowed to and should include other animals such as pigs, goats, chicken, cattle, rabbits etc.

## 3.6 Social Studies

This year the social studies paper was the least challenging of all the papers. Like last year, the national mean raw score was 33.5 or 67% (70% in 2010) with 7.5% ( 9.5% in 2011; 5% in 2010) of the entrants scoring 20 or less (40% or less) and 25% (21% in 2011; (31% in 2010) scoring 40 (80%) or more. four major strands were assessed –civic ideals and practices, people and places, resources, and social issues and change (see Appendix B).

### 3.6.1 Civic Ideas and Practices

The mean for this section was 63.4% (67.4% in 2011). Six items in this section were answered incorrectly by over 50% of the respondents. Item 7 was answered incorrectly by 88% of the students. 65% chose option D as their answer. And Item 18 was answered correctly by only 14% of the candidates

| Item No. | Item | Percent Correct |
|---|---|---|
| 7 | Why were trade unions were formed?<br><br>A. make laws for the country<br>**B. provide protection for workers**<br>C. collect tax for the country<br>D. control trade between countries | 12 |

| | | |
|---|---|---|
| 18 | Shayne usually plays football with Ross and some other friends after school. What type of group is best portrayed?<br><br>A. Peer group<br>B. Formal group<br>C. Sports club<br>D. Voluntary group | 14 |

For item 18, 60% gave sports club (option C) as the correct response.

**3.6.2 Location, People and Places**

The average for this section was 72%. Only two questions were answered incorrectly by less than 60% of the students. None of the questions were answered incorrectly by less than 50% of the students. In fact, students performed best in this section. Only 1 question (21) was answered correctly by exactly half the number of students.

| Item No. | Item | Percent Correct |
|---|---|---|
| 21 | See attached test booklet | 50 |

**3.6.3 Resources**

68% of the students answered most of the items correctly. Items 31 and 38 were the only items answered incorrectly by more than 50% of the candidates. 25% indicated that "Forests are important because everything we need to build our homes come from the forests" (option D).

| Item No. | Item | Percent Correct |
|---|---|---|
| 31 | Why are forests are important?<br><br>A. That's where our rivers begin.<br>B. All of our food comes from the forests.<br>C. They provide a home for our flora and fauna.<br>D. Everything we need to build our homes comes from the forests. | 47 |

### 3.6.4 Social Issues and Change

There was an 8% improvement in this section. About 66% of the students were able to answer this section correctly (58% in 2011). 3 of the 10 questions (44, 46 and 47) in this section were answered incorrectly by more than 50% of the candidates.

| Item No. | Item | Percent Correct |
|---|---|---|
| 44 | Drug addicts are dangerous to society because they<br><br>A. take too many different types of drugs.<br>B. import drugs into the country.<br>C. steal to satisfy their habits.<br>D. become vagrants and beg too much. | 47 |
| 46 | Nowadays more people are getting a higher education. This is because<br><br>A. the government is paying for their classes.<br>B. the internet makes it easier to do online courses.<br>C. every country now has a university.<br>D. Everybody can get a degree at the state college | 44 |
| 47 | See attached test booklet | 42 |

It should be noted that 40% of the test was based on Dominica while 38% was general knowledge. 16% was based on the region and 6% was based on the wider world.

# Appendices

## Appendix A

**GRADE SIX NATIONAL ASSESSMENT 2012**

**COMPOSITION MARKING SCHEME**

| **AREA** | **HIGH** | **MIDDLE** | **LOW** |
|---|---|---|---|
| Ideas/Organisation | 8-10 | 5-7 | 1-4 |
| Relevance to Topic | 8-10 | 5-7 | 1-4 |
| Sentence Structure | 8-10 | 5-7 | 1-4 |
| Usage and Spelling | 4-5 | 2-3 | 1 |
| Capitalization and Punctuation | 4-5 | 2-3 | 1 |
| **TOTAL** | **35-40** | **20-34** | **5 - 19** |

**Minimum Score = 5** *(mainly to indicate that student was registered or attempted exam.)*

## G6NA Composition: Marking Scheme Details

### IDEAS/ORGANISATION

**HIGH** The opening is effective and catches the interest of the reader. There is no wandering, and organisation is clear and sequential. Content is adequately informative and reflects sound, logical details that support the main idea. Transitions clearly show how ideas are connected. The closing is effective and gives the reader the impression that the process is over, and there is an understandable conclusion. Anticipated questions are answered.

**MIDDLE** There is a general introduction but the reader's interest is not captured. Few ideas given but content is not adequate enough to support main ideas. Transitions sometimes work but are unclear at other times. The reader is not provided with the necessary background and the reader is left with some questions. Sequence is unclear and there is little or no sense of closure.

**LOW** The opening does not catch the attention of the reader. Necessary background is lacking. Connections between ideas are confusing or absent. The sequence is confusing and there is no sense of closure or completeness at the end of the composition. Information is limited or unclear or the length is not adequate for development.

### RELEVANCE TO TOPIC

**HIGH** Details and incidents relate to the topic and purpose of the composition. The purpose of the writing is reflected in the writers' arrangement of ideas. Narratives make the reader think about the writer's point of view.

**MIDDLE** Details and incidents are not clearly related to the topic. The information in the essay is unnecessary and elements of the writing are unrelated to the topic.

**LOW** Details and incidents are unrelated to the topic. Information given is completely irrelevant and leaves the reader unclear about the purpose of the composition.

- ***A composition, which scores 1 on this scale, may not obtain a total score above 15 marks for the entire composition.***

**SENTENCE STRUCTURE**

**HIGH** The writer displays interesting variety of structures which are effectively employed. Sentences are constructed in a way that enhances the meaning of the passage. Dialogue sounds natural. Beginnings are purposeful and varied.

**MIDDLE** The writer displays an interesting variety of structures but these are at times clumsy or ambiguous. Sentences are usually constructed correctly. Some variety in beginnings attempted.

**LOW** Structures are little more than simple sentences. They are repeated to the effect that the paper becomes boring or predictable. Sentences are choppy, incomplete or awkward. Many sentences begin the same way (*and, so, but, and then, because, etc.).*

**USAGE AND SPELLING**

**HIGH** Words convey the meaning in a precise and natural way. Words used are specific and accurate and it is easy to understand what the writer means. Usage is appropriate and spelling attracts little or no attention. Error in spelling reflects meaningful guesses. Lively verbs and modifiers add depth to the writing.

**MIDDLE** Words are adequate and correct. Verbs and modifiers add some depth to the writing. Usage efforts are few and do not detract from the impact of the composition. Spelling errors are few. Most guesses are reasonable and do not detract from the impact of the composition.

**LOW** Writer has limited vocabulary. Errors in usage and spelling detract substantially from the readability and impression of the composition. The reader must stop and puzzle over words to figure out what they are or what the writer intended.

**CAPITALIZATION AND PUNCTUATION**

**HIGH** In general, punctuation is accurate and used to make writing clear and readable. Consistent application of capitalization skills is present.

**MIDDLE** Errors in capitalization and punctuation may be present but do not perceptibly detract from the clarity and readability of the paper.

**LOW** Error in capitalization and punctuation substantially detract from the clarity and readability of the composition,

# Appendix B

## Subject Specifications

## Science Paper

A single 1 hour paper consisting of 50 multiple-choice items will be set.

| Topic | Subtopic | Know | C U | Reason | Total | Total |
|---|---|---|---|---|---|---|
| **Life science** | Living things in the environment | 1 | 2 | 2 | 5 | |
| | Plants and animals | 2 | 2 | 2 | 6 | |
| | Adaptations of organisms | 1 | 2 | 1 | 4 | **15** |
| **Earth and space** | Weather and climate | 1 | 2 | 1 | 4 | |
| | Resources | 1 | 2 | 1 | 4 | |
| | Solar system | 1 | 1 | | 2 | **10** |
| **Physical science** | Energy | 2 | 2 | 2 | 6 | |
| | Forces | 1 | 2 | 1 | 4 | |
| | Matter | 1 | 2 | 2 | 5 | **15** |
| **Agriculture science** | Agricultural practices | 1 | 2 | | 3 | |
| | Crops | 1 | 2 | 1 | 4 | |
| | Animals | 1 | 1 | 1 | 3 | **10** |
| | | | | | 50 | **50** |

*The **content level categories** were for the most part taken from the Primary Science Curriculum Guides for grades 5-7. Details of the specific objectives tested can also be found in these Curriculum Guides.*

The **cognitive level categories** are:

**Knowledge** – recall of facts and procedures
**Conceptual understanding** – identifies, labels, gives examples and non examples for concepts; uses words, drawings, symbols etc. to represent ideas, concepts; demonstrates an understanding of principles, concepts and applies these to different situations; demonstrates skills of comparing, classifying, ordering, sequencing and measuring.
**Reasoning** – infers, predicts, interprets data and hypothesises

# Mathematics Paper

One 75-minute paper consisting of 60 multiple-choice items will be set.

| Topic | | Subtopic | Paper 1 | Total |
|---|---|---|---|---|
| | | | # of Ques | |
| **Number** | | Number concepts | 7 | **30** |
| | | Operations | 18 | |
| | | Fractions & decimals | 5 | |
| **Geometry** | | 3D shapes | 2 | **6** |
| | | 2D shapes | 4 | |
| **Measurement** | **Selected from…** | Length | **15** | **15** |
| | | Area | | |
| | | Volume/capacity | | |
| | | Mass | | |
| | | Time | | |
| | | Money | | |
| **Statistics and data handling** | | Data collection | 1 | **6** |
| | | Data representation and interpretation | 5 | |
| **Patterns, functions and algebra** | | | 3 | **3** |
| **TOTALS** | | | 60 | **60** |

**Number concepts** will deal with concepts of place value, properties of numbers etc. as specified by objectives 1.1 – 1.14.
**Computation** will deal with the four operations on whole numbers as specified by objectives 2.1 – 2.12
**Measurement** will cover concepts of length, area, capacity/volume, mass, time and money as specified by objectives 4.1.1 – 4.6.6.
**Geometry** will deal with concepts and properties of simple two and three-dimensional shapes as specified by objectives 3.1 – 3.14.
**Fractions/decimals** – elementary concepts of fractions and decimals will be tested as specified by objectives 5.1- 5.14.
**Statistics** – interpretation of various common ways of representing data will be tested as specified by objectives 6.1 – 6.4.
**Problem Solving** – solution of routine and non-routine problems using a variety of strategies as specified by objective 7.1.

# Social Studies

A single 1 hour paper consisting of 50 multiple-choice items will be set.

| Topic | Subtopic | K | C. U. | R | Subtotal | Grand Total |
|---|---|---|---|---|---|---|
| **Civic ideals and practices (40%)** | Patriotism | 2 | 3 | 1 | 6 | |
| | Cooperation | 1 | 2 | 1 | 4 | |
| | Rights, responsibilities & governance | 1 | 2 | 2 | 5 | |
| | Groups | 1 | 1 | 1 | 3 | **18** |
| **Location, People and places (20%)** | Location | 1 | 2 | 1 | 4 | |
| | Physical earth, natural phenomena and climate | 1 | 1 | 1 | 3 | |
| | People and origin | 1 | 1 | 1 | 3 | **10** |
| **Resources (20%)** | Types, uses, availability & allocation | 1 | 2 | 1 | 4 | |
| | Conservation, preservation of resources | 1 | 1 | 2 | 4 | |
| | Economic activities | 1 | 2 | 1 | 4 | **12** |
| **Social Issues and change (20%)** | Social issues | 1 | 2 | 2 | 5 | |
| | Social change | 2 | 2 | 1 | 5 | **10** |
| | | **14** | **21** | **15** | **50** | **50** |

For questions that pertain to countries, landmasses or bodies of water, about 20% will concern Dominica, 60% the Caribbean and 20% the world.

Teachers are advised to consult the new Social Studies Curriculum Guides for examples of the objectives to be tested (the sub- topic headings have been taken from these Guides). *Objectives tested will emphasize those from the new Grade 6 Guide and work that was done previously in grades 3- 5.*

# Language Arts Paper

A one hour 60 item multiple-choice paper dealing with English mechanics and comprehension will be set. Students will be given a further 40 minutes to write a composition. This written composition will be worth 40% of the total score.

| TOPIC | TOTAL |
|---|---|
| **Composition** | **40** |
| **Usage/grammar** | **10** |
| **Vocabulary** | **10** |
| **Study skills** | **7** |
| **Spelling** | **10** |
| **Comprehension** | **23** |
| **TOTALS** | **100** |

Only areas of the Language Arts curriculum that can be assessed by pencil and paper methods will be tested. The composition will be assessed using the following criteria:

General impression/organisation
Relevance to topic
Sentence structure
Usage and spelling
Capitalisation and punctuation

# Appendix C

## Item Facility Index - G6NA 2010 Multiple Choice Papers

| Item Number | Mathematics | Language Arts | Science | Social Studies |
|---|---|---|---|---|
| 1 | 81 | 65 | 55 | 95 |
| 2 | 91 | 93 | 70 | 90 |
| 3 | 36 | 78 | 82 | 88 |
| 4 | 58 | 54 | 84 | 38 |
| 5 | 54 | 91 | 57 | 80 |
| 6 | 71 | 35 | 29 | 884 |
| 7 | 86 | 43 | 69 | 12 |
| 8 | 51 | 55 | 43 | 46 |
| 9 | 42 | 65 | 45 | 49 |
| 10 | 37 | 90 | 54 | 37 |
| 11 | 37 | 78 | 80 | 47 |
| 12 | 63 | 27 | 76 | 90 |
| 13 | 84 | 48 | 75 | 92 |
| 14 | 71 | 55 | 31 | 70 |
| 15 | 61 | 92 | 85 | 51 |
| 16 | 89 | 70 | 60 | 66 |
| 17 | 72 | 76 | 48 | 91 |
| 18 | 58 | 62 | 80 | 14 |
| 19 | 67 | 65 | 57 | 83 |
| 20 | 55 | 73 | 68 | 79 |
| 21 | 78 | 55 | 29 | 50 |
| 22 | 83 | 56 | 76 | 668 |
| 23 | 59 | 60 | 43 | 82 |
| 24 | 60 | 75 | 68 | 85 |
| 25 | 31 | 53 | 83 | 73 |
| 26 | 47 | 39 | 86 | 68 |
| 27 | 81 | 58 | 65 | 75 |
| 28 | 28 | 48 | 72 | 56 |
| 29 | 29 | 57 | 88 | 87 |
| 30 | 54 | 63 | 80 | 73 |
| 31 | 86 | 43 | 63 | 47 |
| 32 | 60 | 84 | 39 | 70 |
| 33 | 33 | 59 | 39 | 76 |
| 34 | 57 | 87 | 51 | 58 |

| | | | | |
|---|---|---|---|---|
| 35 | 21 | 25 | 63 | 83 |
| 36 | 77 | 49 | 69 | 71 |
| 37 | 33 | 30 | 39 | 61 |
| 38 | 26 | 73 | 59 | 48 |
| 39 | 49 | 81 | 60 | 79 |
| 40 | 51 | 73 | 43 | 68 |
| 41 | 31 | 54 | 42 | 81 |
| 42 | 41 | 68 | 68 | 88 |
| 43 | 39 | 23 | 63 | 78 |
| 44 | 62 | 53 | 87 | 47 |
| 45 | 52 | 72 | 74 | 71 |
| 46 | 58 | 72 | 28 | 44 |
| 47 | 87 | 70 | 55 | 42 |
| 48 | 36 | 60 | 89 | 87 |
| 49 | 68 | 78 | 16 | 65 |
| 50 | 75 | 52 | 38 | 58 |
| 51 | 90 | 85 | | |
| 52 | 76 | 78 | | |
| 53 | 47 | 28 | | |
| 54 | 89 | 82 | | |
| 55 | 59 | 76 | | |
| 56 | 72 | 44 | | |
| 57 | 76 | 35 | | |
| 58 | 46 | 66 | | |
| 59 | 50 | 38 | | |
| 60 | 68 | 47 | | |

# APPENDIX D

## Standardizing Test Scores

Since the scores for each of the test are on different scales, it presents a challenge in determining overall achievement. The raw scores on each test have different values – Language Arts is marked over 100; Mathematics is marked out of 60 and Social Studies and Science are each marked over 50. Adding the score in Mathematics to Science, Language and Social Studies would be like adding miles, meters and inches.

### Calculating Standard Scores

Using an academic test example, we will examine the scores of five students who wrote the G6NA. The Language Arts paper 1 has 60 multiple choice questions worth 1 mark each and one written paper worth 40 marks. The mathematics paper consists of 60 multiple choice items while the Science and Social Studies papers each have 50 multiple choice questions. Each multiple choice item is worth 1 mark. The table below represents the scores obtained by each student.

***Table 6: Scores obtained by students***

| NAME | LA | | Math | | Sci | | SS | |
|---|---|---|---|---|---|---|---|---|
| | Raw | % | Raw | % | Raw | % | Raw | % |
| Ivan Terrible | 93 | 93 | 58 | 96.7 | 46 | 92 | 36 | 72 |
| Mike John | 86 | 86 | 57 | 95.0 | 47 | 94 | 46 | 92 |
| Sally Saucer | 87 | 87 | 56 | 93.3 | 48 | 96 | 45 | 90 |
| John Doe | 71 | 71 | 35 | 58.3 | 37 | 74 | 42 | 84 |
| Ty Lawson | 55 | 55 | 17 | 28.3 | 21 | 42 | 27 | 54 |
| | | | | | | | | |
| **Mean** | **78.4** | **78.4** | **44.6** | **74.3** | **39.8** | **79.6** | **39.2** | **78.4** |
| **Standard Deviation** | **15.4** | | **18.1** | | **11.4** | | **7.9** | |

In order to calculate the standardized score, the mean (78.4 for LA) and standard deviation (15.4 for LA) are needed (included in table). The CMEU uses a standard mean of 100 and standard deviation of 15 in order to calculate standard scores.

Two steps are involved in calculating the standard scores for students. First, the raw scores are calculated to $Z_{scores}$. The $Z_{scores}$ are then converted to Standardized scores.

- Converting raw scores to $Z_{score}$

$$\frac{\textit{Raw score – Population mean}}{\textit{Standard deviation}}$$

- Converting z-scores to standard scores

$$(Z_{score} \times \textit{standard scale standard deviation}) + \textit{Standard scale mean}$$

Using test LA as an example, the standard score is calculated as follows for Ivan Terrible:

- Calculate z-score by subtracting the population mean from the raw score and the dividing the result by the standard deviation, that is:

$$\frac{93 - 78.4}{15.4} = 0.948$$

- Next the z-score is converted to the standard score by multiplying the z-score by the agreed standard scale standard deviation of 15, then adding the mean of 100, that is

$$(0.95 \times 15) + 100 = 114.23 \text{ (or 114)}$$

The standardized scores for all the students are shown in the table 7 below.

***Table 7: Computed Standard scores***

| NAME | LA | | Math | | Sci | | SS | | Comp. Score |
|---|---|---|---|---|---|---|---|---|---|
| | Zscore | Stand | Zscore | Stand | Zscore | Stand | Zscore | Stand | |
| Ivan Terrible | 0.95 | 114.23 | 0.74 | 111.08 | 0.54 | 108.17 | -0.41 | 93.89 | 427.36 |
| Mike John | 0.49 | 107.41 | 0.68 | 110.25 | 0.63 | 109.48 | 0.87 | 112.99 | 440.13 |
| Sally Saucer | 0.56 | 108.38 | 0.63 | 109.42 | 0.72 | 110.80 | 0.74 | 111.08 | 439.68 |
| John Doe | -0.48 | 92.79 | -0.53 | 92.06 | -0.25 | 96.31 | 0.36 | 105.35 | 386.51 |
| Ty Lawson | -1.52 | 77.19 | -1.52 | 77.19 | -1.65 | 75.24 | -1.55 | 76.70 | 306.32 |

Standard scores are calculated for all the papers and summed to obtain the composite standard score. The composite standard score accurately represents students overall performance.

# APPENDIX E

## GRADES RECEIVED BY DISTRICT

Language Arts

| Grades | A | B | C | D | E | Total |
|---|---|---|---|---|---|---|
| **District** | | | | | | |
| **E** | 8 | 31 | 79 | 27 | 11 | **156** |
| **N** | 18 | 64 | 151 | 37 | 48 | **318** |
| **S** | 7 | 30 | 85 | 24 | 23 | **169** |
| **W** | 62 | 135 | 245 | 63 | 43 | **548** |
| **TOTALS** | **95** | **260** | **560** | **151** | **125** | **1191** |

Mathematics

| Grades | A | B | C | D | E | Total |
|---|---|---|---|---|---|---|
| **District** | | | | | | |
| **E** | 18 | 22 | 70 | 30 | 16 | **156** |
| **N** | 21 | 72 | 119 | 68 | 38 | **318** |
| **S** | 6 | 36 | 85 | 21 | 21 | **169** |
| **W** | 79 | 114 | 219 | 84 | 52 | **548** |
| **TOTALS** | **124** | **244** | **493** | **203** | **127** | **1191** |

Science and Technology

| Grades | A | B | C | D | E | Total |
|---|---|---|---|---|---|---|
| **District** | | | | | | |
| **E** | 13 | 32 | 65 | 35 | 11 | **156** |
| **N** | 25 | 52 | 144 | 65 | 32 | **318** |
| **S** | 6 | 25 | 81 | 38 | 19 | **169** |
| **W** | 63 | 130 | 235 | 76 | 44 | **548** |
| **TOTALS** | **107** | **239** | **525** | **214** | **106** | **1191** |

Social Science

| Grades | A | B | C | D | E | Total |
|---|---|---|---|---|---|---|
| **District** | | | | | | |
| **E** | 3 | 33 | 85 | 17 | 18 | **156** |
| **N** | 12 | 76 | 155 | 38 | 37 | **318** |
| **S** | 2 | 27 | 93 | 25 | 22 | **169** |
| **W** | 41 | 156 | 257 | 53 | 41 | **548** |
| **TOTALS** | **58** | **292** | **590** | **133** | **118** | **1191** |