

### 5.3 Reading Comprehension:

Read the story very carefully. Circle the letters beside the best answers for the questions.

It was the summer holidays. Kim and his sister Ali enjoyed long hours of sleep in the mornings. They watched television, went to music classes weekly and played all kinds of indoor and outdoor games together. They were playing a game when the phone rang. Mom answered. She was very happy after speaking on the phone. Soon she was busy baking pies and singing loudly. She had not seen Aunt Sue for a long time. Aunt Sue went to live in Canada when Mom was a child. Kim and Ali had never seen their Mom so happy.

The next morning, the phone rang again. Before we could reach the phone, Mom answered.

“I am so sorry,” she said, as she shook her head. After the call Mom looked sad.

1. The story took place during
  - (A) the Easter holidays
  - (B) the Christmas holidays
  - (C) the Summer holidays
2. Kim and his sister Ali enjoyed long hours of sleep in the mornings. This means that
  - (A) they woke up late in the afternoons.
  - (B) they sleep all day.
  - (C) they woke up later than usual in the mornings.
3. How often did the children go to music classes?
  - (A) Every day
  - (B) Every week
  - (C) Every month
4. Two words in line 3 that are opposite in meaning are
  - (A) all and together
  - (B) played and games
  - (C) indoor and outdoor

## 5.4 Grammar & Mechanics

1. Write the part of speech for each of the words in italics BELOW. Use the lines provided.

1. She sings extremely *well*. \_\_\_\_\_
2. Tamara *set* the table while Georgette prepared the breakfast. \_\_\_\_\_
3. The thief disappeared as the *police* officer approached him. \_\_\_\_\_

2. Use the conjunctions below to correctly complete each of the sentences. Do not use any conjunction twice.

but      while      because      although      since      until      and

1. Mr. Broomes would not allow me back in class \_\_\_\_\_ I promise to behave.
2. We ran quickly to school \_\_\_\_\_ we were still late.
3. The game was cancelled \_\_\_\_\_ it was raining.
4. I will not take it \_\_\_\_\_ you want me to.

3. Rewrite the sentences putting the verbs underlined in the simple past tense.

1. Sam paints the house.
2. She will sit patiently for the bus to arrive.
3. I am going to town to buy a pair of shoes.
4. Nathan is throwing the ball to his friend.

4. Complete each sentence by inserting into the blank space the adjective formed from the noun given.

1. **danger**      The cliff is too \_\_\_\_\_ to climb.
2. **favour**      Mother always cooks my \_\_\_\_\_ meal on Sundays.
3. **greed**      The \_\_\_\_\_ dog chewed hungrily on the bone.
4. **wealth**      A \_\_\_\_\_ family lives in the mansion on the hill.

5. Complete each of the following by underlining the correct word from the brackets.

1. Hasn't (no one, anyone) see my pen.
2. Before we had (hanged, hung) the clothes on the line, it began to rain.
3. I have the (most prettiest, prettiest) dress.

6. Vocabulary

Circle the word that is OPPOSITE in meaning to the underlined word in each of the following sentences.

- i. This pupil always submits untidy work to his teacher.  
A. clean                      B. complete                      C. dirty                      D. late
- ii. Grandma drank the bitter bush tea.  
A. salty                      B. sweet                      C. strong                      D. sour

## 7. Homophones

Complete each sentence by underlining the correct word in the brackets.

1. Do not (wring, ring) the clothes before hanging them on the line.
2. The dog chased the (herd, heard) of cattle across the field.
3. Shawn tied the blue sash around her (waist, waste).
4. The Mathematics classes lasted for an (hour, our).

## 8. Plurals

Change each word in the brackets to its plural form. Write the plural in the space provided.

1. Put the \_\_\_\_\_ into the water. (potato)
2. We learnt about \_\_\_\_\_ in our science classes. (pulley)
3. Are several pupils waiting to play the \_\_\_\_\_? (piano)
4. The \_\_\_\_\_ were all dressed in blue. (maid-of-honour)

9. Circle the letter beside the word that means the same or almost the same as the underlined words.

- i. You have enough time to complete the examination.  
A. adequate      B. extra      C. little      D. much
- ii. The President pardons the prisoner.  
(A.) chastises                      (B.) forgives                      (C.) condemns

**1. Rewrite and punctuate the following passage on the lines below.**

Barnardo was startled by what he heard. Could it be true that this ten year old boy really had no home. Are there other boys like you Jim without a home asked Barnardo. Oh yes lots of them was the reply. Surely the boy must be telling lies thought Barnardo but suppose he is telling the truth. I will give you a meal and a bed for the night Jim. Will you show me where these boys sleep

*Story by Geoffery Hanks*

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**2. From the passage below, identify FIVE common nouns and FIVE proper nouns.**

Michael and Sharon crashed into David Smith's stall in the middle of Reeds Avenue with their football. Mr. Smith was angry at first but he forgave them, but said he would inform their parents of the incident. Sharon was afraid because her mother told her she could play with the ball, but only if they she was very careful. So Sharon and Michael went through the back gates of the park and sat on a bench so they could stay out of trouble.

Common Nouns	Proper Nouns
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

## CHAPTER 6

### ASSESSMENT TOOLS AND TECHNIQUES: PERFORMANCE ASSESSMENT

#### 6.0. Introduction: Performance assessment

This chapter deals with several types of performance based assessment strategies. Mc Millan (2004) describes performance assessment as “one in which the teacher observes and makes judgment about the pupil’s demonstration of a skill or competency in creating a product, constructing a response, or making a presentation” (p.198). He further stated that the term *performance* is shorthand for *performance based* or *performances-and-product*. Nitko (1996) described performance assessment as a procedure in which teachers use work assignments to obtain information about how well pupils have mastered the course material.

Performance assessment tasks require pupils to produce, construct or perform a task. The tasks may consist of practical activities such as painting a scene or baking a cake, or they may involve paper-and- pencil writing tasks. Performance assessment is an umbrella term used for a number of assessment modes in which the pupils are required to compose or construct their own response to a test item. It could involve practical work, oral work or written work. These assessment tasks require pupils to draw skills from a various aspects of the content domain, and to demonstrate higher order thinking skills, such as analysis, reasoning and problem solving.

#### 6.1. Restricted versus Extended Performance Tasks

Some writers (Gronlund, 2003; McMillan, 2004; Payne, 2003) make a distinction between restricted performance tasks and extended performance tasks. A restricted performance task is designed to measure a specific or limited amount of knowledge or a limited number of skills. Extended performance tasks on the other hand require numerous skills and concepts to perform the tasks. The distinction between restricted and extended tasks is arbitrary and can vary according to individuals. It is a matter of judgement. However, in general the time taken to complete a task and the number of concepts and skills required to do the task can be used as a guides in making the distinction.

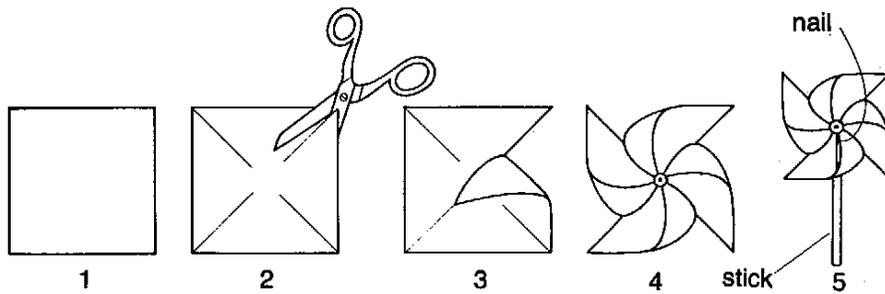
**Table 6.1 Restricted performance versus extended performance tasks**

Restricted - Performance Task	Extended Performance Task.
Construct a graph using given data	Paint a scene of a street carnival
Make one-minute speech on the importance of exercising frequently	Write an essay on "Christmas Morning in Queen's Park in Bridgetown".
Write a paragraph on a given topic	Design a stool for the science laboratory
Test the amount of chlorine in a given bottle of water	Repair a broken- down automobile

**6.2 Science examples: Restricted performance assessment tasks**

**Suitable for Grade 1 - 3**

1. Make a windmill. Use a piece of card, a stick and a nail. The pictures will show you how to do it. Use the windmill to see how strong the wind is.



2. Test the following objects to see if they sink or float.

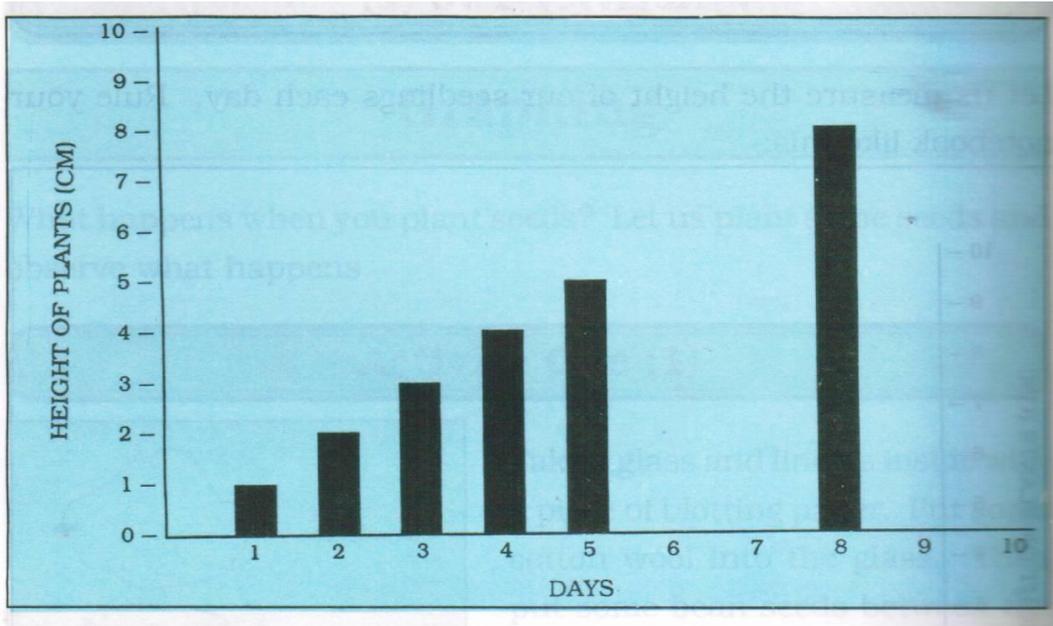
(a) Put each object into the bowl of water.

(b) Complete the table, using a tick (✓), show if an item sinks or floats.

Object	SINK	FLOAT
Sponge		
Pebble		
Marble		
Cotton reel		
Pencil		
Eraser		
Paper clip		
Chalk		
Bottle cap		

N.B. Suitable for Grades 4 to 6

3. The chart below shows the growth of a seedling. The height of the seedling was not recorded on some days. Answer the following questions.



What was the height of the plant on Day 3? \_\_\_\_\_

What do you think was the height of the plant on Day 6? \_\_\_\_\_

What do you think was the height of the plant on Day 7? \_\_\_\_\_

What do you think will be the height of the plant on the Day 10? \_\_\_\_\_

*Adapted from Thomas, M. (1995) Caribbean Science Series. Trinidad. Charran Publishing House*

### 6.3 Process versus Product

Performance based assessments may require pupils to demonstrate a sequence of skills or require pupils to focus on the outcome or product of an activity. Hence when we are dealing with performance based tasks we need to be clear about what we are going to assess, whether the process or the product or both. This is of particular importance when tasks such as role playing, simulation exercises, laboratory work, physical activities, speaking engagements, music, painting and so forth are being assessed.

#### Products

Two kinds of products can be assessed: Written products and Physical products.

Examples of **written products** are term papers, essays, journals and laboratory reports. Examples of **physical products** are industrial art projects, paintings, sculpture and clothing.

#### *Guidelines to assist the teacher in deciding whether to assess process, product or both*

- (i) When the steps involved in making the product can be retrieved, focus on the product.
- (ii) When the important characteristics of the product can be measured accurately or objectively, focus on the product.
- (iii) When it is not possible to assess the process, focus on the product.
- (iv) When the process is extremely critical, then the process should be assessed (e.g. patient care and hospital simulations).
- (v) When both process and product are important focus on both.

### 6.4 Authentic Assessment

Not all performance tasks are authentic. Authentic refers to the context in which the response to the task is performed (Gallagher, 1998). Authentic tasks should be relevant to the curriculum activities and as much as possible to real life situations. Wiggins (1983) suggests that “Authentic tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field” (p.229). The major difference between performance assessment tasks and authentic assessment tasks is the extent to which the task approaches a real life task. Table 6.2 below illustrates the difference between performance tasks and authentic tasks.

**Table 6.2 Performance and Authentic Tasks**

<b>Performance task</b>	<b>Authentic Task</b>
Write an essay on “How we can improve our school”	Identify one major problem in your school that the Headmaster and staff should resolve urgently. Explain how the problem can be solved. Use whatever method of communication you think is best suited to the situation.
Discuss the qualities of a good citizen	You are the elected representative of your town. Write a speech you will deliver in parliament, outlining your plans to improve the social services in your community.

### **6.5 Guidelines for Developing Performance/Authentic Tasks**

Integrate the most essential aspects of the content with the most essential skills.

1. Place the task in a real-world context as far as it is possible to do so.
2. Structure the task to assess multiple learning targets.
3. Structure the task to help pupils to succeed.
4. Ensure that the task is feasible within the constraints given.
5. Construct tasks that allow for multiple solutions.
6. Ensure that the task is clearly specified.
7. Make the task challenging and stimulating to pupils.
8. Include explicitly stated scoring criteria as part of the task.

(Adapted from Mc Millan,1997)

#### ***Additional considerations***

It must be stressed that the tasks must be matched to the learning outcomes stated in the syllabus. Tasks should not only emphasize cognitive skills, but psychomotor skills and should help to develop aspects of the affective domain as well.

1. Tasks are to be based on critical learning outcomes for the subject.
2. Strategies need to be put in place to check that the pupil does his or her own work.

3. The project should be limited to the available resources.
4. The standards required should be specified clearly.
5. Scoring rubrics should be provided
6. The specific dimensions on which the project will be evaluated should be specified.
7. The weights (marks) for each dimension should be clearly stated.
8. All deadlines should be clearly specified.
9. Strategies to discourage plagiarism (e.g. periodic interviews/ oral presentations) should be put in place.
10. Where possible provide exemplars for pupil to study.

## **6.6 Projects**

A project is an extended performance task. Nitko (2004) defines a project as ‘a long-term activity that results in a pupil product’ (p.523). He suggested that the product may be a model, a functional object, a substantial report or a collection. Deere (1974) argued that a project is an activity that knits together various packets of materials; it comprises various kinds of tasks and hence integrates several skills in the process. He recognised that projects vary considerably, but concluded that, in general, a project is “a teaching/learning activity which requires the pupil to determine one or more of the following: his strategy, his resources, his target; which presents a task which is not artificially compartmentalised or idealised; which allows a range of solutions rather than a unique answer” (p.106)

### **6.6.1. Characteristics of a Good Pupil Project**

1. It focuses on multiple learning outcomes.
2. It includes the integration of understanding, skills and strategies.
3. It deals with problems and activities that relate to out-of-school life.
4. It involves the active participation of pupils in all the phases of the project.
5. It provides for self-assessment and independent learning.
6. It requires performance skills that are generalizable to similar situations.
7. It is feasible within the constraints of pupil’s present knowledge, time limits, and available resources and equipment.
8. It is both challenging and motivating to pupils.
9. It is fair and doable by all pupils
10. It provides collaboration between pupils and the teacher.

(Gronlund, 2003; p.148)

Example: Individual Project - Room to Decorate: Grades 4 to 6

Choose a room in your house to redecorate.

- (a) Based on the floor space, determine whether it is cheaper to tile or carpet the floor.
- (b) Decide whether to paint the walls or use wallpaper. Present a report explaining your decisions. You should submit appropriate drawings; indicate all necessary calculations, cost of materials and labour and any other important factors which affect your decisions.

Example: Statistics Project

Choose ONE of the following:

- (a) Vehicular accidents in your district or country.
- (b) A social problem in your district or country.

Carry out the following tasks:

- (i) Collect relevant monthly data for a period of 10 – 12 months OR annual data for a period of 10 – 12 years.
- (ii) Collect comparative data e.g., for a similar time period or for another district.
- (iii) Carry out the investigation and present the information from (i) and (ii), using appropriate tables, charts and diagrams and graphs as well as appropriate descriptions in words.
- (iv) Describe the information clearly and discuss any important features, trends or problems that the data suggest and compare the two sets of data. You may make predictions, discuss implications or make appropriate recommendations to the Head of Department to rectify or improve any problems you identify.

*\*May be done as an individual or group project*

Example: Science Performance Assessment

This performance task is grounded on scientific experiment. However, there is integration of Language Arts and Mathematics. The performance task will be conducted over a two-week period how a plant's surrounding environment affects its growth.

### *Performance Task*

1. Two plants will be placed in two different environments. One plant will be placed in the school's garden, while the other plant will remain in the classroom in a black plastic bag. The plants will be tagged A and B.
2. Students will be placed in groups of three and each group will be required to make journal entries on the growth and progress of each plant.
3. At the end of the two-week period, each group will prepare a report that includes the following:
  - a. Identify the changes made by both plants in chronological order.
  - b. Compare the times it takes for each plant to make changes.
  - c. Explain the needs of each plant under observation.
  - d. Discuss the effects the environment has on each plant.
4. The pupils should achieve the following learning targets by the end of the task:
  - a. Estimate the length of objects
  - b. Compare times
  - c. Write in journals to evaluate circumstances
  - d. Write reports on scientific experiments
  - e. Collect data where required
  - f. Illustrate data in an appropriate way
  - g. Interpret data and draw logical conclusions
  - h. Identify the needs of a growing plants
  - i. Study areas or environments and note plant adaptations
5. An analytic rubric will be used to pinpoint and highlight the strengths and weaknesses of the group projects. This will allow the teacher to give specific feedback to each group as well as to score the projects in a less subjective way when compared to a holistic rubric.

### **6.7 Cooperative Learning/ Group Projects**

Some projects are best done as group work. Educators today are putting increasing emphasis on cooperative learning. It is argued that in real life, citizens have to work with other persons; it is therefore critical to plan tasks that require pupils to work in groups. Nitko, (2004) pointed out that: "Research on cooperative learning indicates that pupils' achievement is best when the learning setting requires both group goals and individual accountability" (p.243). He also suggested that the two conditions are essential in order that the true benefit of cooperative learning can be realised. First, cooperative groups must have a group goal. Second, individual accountability is important. Therefore, when assessing group work, both an assessment of the group's performance and an assessment of the efforts of each individual member are to be done.

### ***Some strategies for assessing group work***

1. Structure the task so that each member of the group has a piece of the work to do. Hopefully peer pressure or the desire to cooperate would motivate each pupil to do his/her part.
2. Monitor the work closely to ensure that all pupils actively pursue the task.
3. Orally examine each pupil to establish their knowledge of the subject, and the degree of his/ her participation and contribution.
4. Develop an assessment scheme to enable members of the group to assess each other's contribution.
5. Develop a procedure for combining the group score and the individual's contribution score for each individual.
6. However, if the objective of the project is to develop cooperative learning rather than individual achievement, the average score for the group would be adequate.

Problem for discussion:

*How would you assess individually candidates involved in group work?*

*Showing how mathematics relates to real life will require open-ended tasks that often focus on writing and communication skills as in the following examples.*

Example: Group Project\_Statistics, Consumer Arithmetic, Health science

The management of your school is considering adding a snack section to the cafeteria offerings. You are asked to assist in the preparatory planning.

- (a) Ask a sample of 100 pupils to give you their 10 most preferred snacks.
- (b) Ascertain the cost price (for bulk rate) and the normal selling price of those snacks.
- (c) Advise the management which snacks to stock and the price at which to sell them.

Present your report, showing how you selected the sample, and all relevant data used to help you arrive at your conclusion.

**Activity for Teachers:**

1. For each of the examples above, identify the standards, strands and sub strands to which the tasks **relate**.

2 Suggest projects/ investigations involving statistics, consumer arithmetic, geometry, or any other units in the syllabus you choose.

Group investigation (Consumer Arithmetic, Home Economics and Science -Grades 5 & 6)

With the major improvements in our electrical system consumers now have a choice between a variety of appliances. For instance, consumers can choose between (i) an electrical heater or a solar water heater, (ii) an electrical stove/ range or a gas stove/ range and (iii) an electrical BBQ, gas BBQ or a coal BBQ. {Source: Anguilla workshop 1992}

For this project/investigation pupils are required to investigate if it is more economical to purchase and use an electrical stove/range or to purchase a gas stove/range.

Hint: In doing this project, pupils should consider

- (i) A typical household of 3 to 6 persons.
- (ii) Average number of hours these appliances are used each day.
- (iii) The average of maintenance costs for the different kinds of appliances.
- (iv) The cost of a bottle of propane gas and the average time it lasts.

Submitted by Participants at a Primary School Teachers Workshop conducted in 1992 by James Halliday

## CHAPTER 7

### SCORING RUBRICS

#### Introduction

This chapter deals with scoring rubrics. A rubric describes the scoring rules to mark a performance task. Huba & Freed (2000) suggest that the rubrics should explain to the pupil the criteria against which their work will be judged. They are the guidelines for scoring tasks. Rubrics set out the criteria for scoring; they describe the facets or dimensions of pupil performance that are used for judging the level of achievement (Mc Millan, 2007)

In order to specify the criteria, we need to summarize the dimensions of the performance that we require. Next we try to develop a qualitative scale to show the differences in the level of performance that we expect. We may consider terms like Excellent, Good, Adequate, Weak, Unsatisfactory. Or we may use terms like Outstanding, Very Good, Satisfactory and, Inadequate. Whatever terms we use, we must ensure that there is a qualitative difference in the terms used.

Some of the recommended descriptors from Huba & Freed (2000) that are useful for feedback purposes include the following: (i) Developing, Proficient and Exemplary (ii). "More than Adequate", "Adequate", and "Less than Adequate"(iii) Sophisticated, Competent, Partly Competent, Not yet Competent; (iv) Proficient, marginal, unacceptable (v) Exemplary, Proficient, Marginal, Unsatisfactory

The terms used will depend on whether the scoring is for summative assessment or for formative assessment, the nature of the task and the grade level of the pupils. A plethora of rubrics can be found on the internet and in text books. However, there are a few guidelines that teachers should think about.

#### ***Guidelines for Designing Rubrics***

Ensure that the type of rubric is suitable for the purpose of the assessment
Use terms or descriptors that shows qualitative differences
Use descriptors that will denote the quality of work
Avoid using normative terms like "average", "below average" etc.
State the criteria in words that communicate useful information to the pupil, the parent or other teachers

### ***Number of points on the scale***

In general, the number of points to use depends on the purpose of the rubric and whether it is for formative or summative purposes. Generally speaking, for primary school between 3 and 6 points are common. For very young children, three points may be adequate. One tends to want more discrimination at the upper end of Primary. This writer recommends the use of FOUR points at the lower end and SIX points at the upper end. It is strongly recommended that as far as possible teachers avoid three and five points, because of the central tendency problem. Many teachers tend to score most tasks at the middle point. Using an even number forces the marker to study the responses more keenly and give the appropriate grade.

A number of rubrics written by teachers are given in this chapter. Critique them and adapt them or modify them as you see fit.

#### **TASK for TEACHERS:**

*For each of the rubrics listed below:*

- (i) Determine the Grade level and type of task for which you think the rubric is appropriate.*
- (ii) Modify it for use in your class.*

#### **(a) Analytic Scoring Rubric**

Scoring is on four qualities or dimensions

##### **A. Ideas and Development**

**4:** Response is clear, focused, well developed and connects the writing to the specified purpose. The writer develops the topic in a logical, organized way.

**3:** Response is clear and focused. Ideas though related to the purpose specified may be sketchy or overly general. The writer has defined but not thoroughly developed the topic, idea, or story.

**2:** The response does not maintain focus throughout. The writer has defined but not thoroughly developed the topic, idea, or story line; response may be unclear or sketchy or may read like a collection of thoughts from which no central idea emerges. Ideas are minimally related to the purpose specified in the prompt.

**1:** The response tends to be unfocused. The writer has not defined the topic. Ideas may not be related to the purpose specified in the prompt. Details may be irrelevant or too insufficient for the reader to construct meaning.

**B. Organization**

**4:** The writer develops the topic in a logical, organized way. Supporting details are relevant and provide important information about the topic. The main idea stands out from the details.

**3:** Attempts to introduce and develop the topic in an organized way; adequate focus; adequate sequencing of ideas. Stays on the topic for the most part; Order and structure are present; appropriate conclusion.

**2:** May lack a clear organizational structure; little or no evidence of unity; limited sequencing and or transitions. Details may be randomly placed.

**1:** Organization is not evident; lacks logical direction.

**C. Sentences and Paragraphs**

**4:** Ideas well organized into paragraphs; the main idea stands out from the details. Supporting details are relevant and provide important information about the topic; demonstrates use of varied and appropriate sentence structure; has few or no run on or fragment errors.

**3:** Ideas are organized into paragraphs. The writer makes general observations without using specific details or does not delineate the main idea from the details. Some supporting details are relevant but limited, overly general, or less important. Adequately demonstrates appropriate and varied sentence structure, or may use simple but accurate sentence structure. May contain a small number of run on or fragment errors which do not interfere with fluency.

**2:** Demonstrates little or no attempt at paragraphing. No distinction is made between main ideas and details or supporting details are minimal or irrelevant or. Writing may be choppy or repetitive. Portions of the writing may be unreadable; errors may impede communication in some parts of the response

**1:** No attempt at paragraphing. Supporting details are absent. The writer uses simple, repetitive sentence structures or many sentence fragments; many errors in structure impeding fluency.

#### **D. Conventions and Mechanics**

**4:** Demonstrates appropriate use of correct spelling, punctuation, capitalization, grammar usage. Errors are minor and do not affect readability.

**3:** Demonstrates adequate use of correct spelling, punctuation, capitalization, grammar usage. Errors may be more noticeable but do not significantly affect readability.

**2:** Demonstrates minimal use of correct spelling, punctuation, capitalization, grammar usage. Errors may be distracting and interfere with readability.

**1:** Demonstrates very limited use of correct spelling, punctuation, capitalization, grammar usage. Errors are numerous and severely impede readability.

*Used with permission from Analytic Rubric by Donna Roberts in Master of Education Thesis*

#### **(b) Holistic 5- Point Scoring Rubric**

**5** = Demonstrates strong composition skills. The response is clear, focused and well developed. Relevant details and choice of words support and enrich the central idea. Demonstrates careful and acceptable use of conventions and mechanics; any errors in language usage, spelling, and mechanics, if present, do not impede meaning.

**4** = Demonstrates good composition skills. The response is clear and focused, although development and sentence structure may suffer minor flaws. Any errors in language usage, spelling, and mechanics, if present, do not impede meaning. The writing effectively accomplishes the goals of the assignment.

**3** = Essay contains satisfactory composition skills. The response is mostly clear and focused, although development shows some weaknesses and sentence structure may not be always clear and effective. Demonstrates competence in the use of mechanics; errors where noticeable do not impede readability; accomplishes the goals of the assignment with an overall effective approach.

**2** = Essay demonstrates acceptable competence in composition skills including adequate development and organization. The development of ideas may be commonplace and assumptions may be unsupported in more than one area or may not be clear and effective. Errors begin to impede readability. Minimally accomplishes the goals of the assignment.

**1** = Essay demonstrates weak competence in composition skills. Focus, development, organization and or sentence structure has flaws. Some ideas are unsupported. Some errors impede clarity and readability. Minimally accomplishes the goals of the assignment.

**0** = Composition skills are very weak. Significant errors in use of conventions and mechanics seriously affect readability. The reader finds it difficult to focus on the message and must reread for meaning; fails to accomplish the goals of the assignment.

*Adapted with permission from Holistic Rubric by Donna Roberts in Master of Education Thesis*

### **(c) Mathematics Holistic Scoring Rubric**

*Suitable for Grades 3 to 6*

**3** = Response is exemplary. Task is completed with no errors. Work is clear and complete. Demonstrates a thorough understanding of the mathematical concepts or procedures embodied in the task

**2** = Response is mostly correct. Task is completed with some minor errors. Work shows basic understanding of the problem and uses anticipated approaches. However, the response may contain minor flaws which reflect inattentive execution of the mathematical procedures, or misunderstanding of underlying mathematical concepts or problems.

**1** = Response is partially correct. Work demonstrates only a limited understanding of the mathematical concepts or procedures embodied in the task. Although pupil may address some of the conditions of the task, the pupil reached an inaccurate conclusion demonstrating misunderstanding of important aspects of the task.

*Adapted with permission from Holistic Rubric by Donna Roberts in Master of Education Thesis*

### **(d) Three - Point Rubric for Problem Solving**

*For Grades 3 to 6*

**3 = Thorough/ Insightful Use of Skills/ Strategies:**

The skills and strategies show some evidence of insightful thinking to explore the problem. Pupil's work is clear and focused. Skills/ Strategies are appropriate and demonstrate some insightful thinking. The response gives possible extensions or generalizations to the solution of the problem.

## 2 = Partial Use of Skills/Strategies

The skills and strategies have some focus, but clarity is limited. The pupil applies a strategy which is only partially useful. Strategy is not fully executed. The pupil starts the problem appropriately, but changes to an incorrect focus. Recognizes the pattern or relationship, but expands it incorrectly.

## 1 = Limited Evidence of Skills/ Strategies

The skills and strategies lack a central focus and the details are sketchy or not present. The procedures are not recorded (i.e., only the solution is present); strategies are random; The pupil does not fully explore the problem, looking for patterns or relationships. The pupil fails to see alternative solutions that the problem requires.

*Used with permission from Holistic Rubric by Donna Roberts in Master of Education Thesis*

(e) **Mathematics Analytic Rubric**

**MATHS SCORING RUBRIC FOR ANALYTIC TRAITS**

**3 TRAITS / DIMENSIONS 4 LEVELS OF QUALITY**

	<b>STRATEGIC KNOWLEDGE (REASONING) D1</b>	<b>CONCEPTUAL KNOWLEDGE (ACCURACY) D2</b>	<b>COMMUNICATION (EXPLANATION) D3</b>
4	Shows a sound understanding of the strategies, principles and procedures required for the solution, reasons well; solution is complete or very near completion	Gives accurate or very near accurate calculations measurements & drawings; mathematical symbols and representations are used correctly; executes algorithms well.	Explanations are clear, logical and coherent; arguments and reasons for decisions are sound. Makes effective use of language, graphs, tables and diagrams to convey ideas
3	Shows a good understanding of the strategies, principles and procedures required for the solution, reasons fairly well; solution is fairly complete.	Gives mostly accurate calculations, measurements & drawings; mathematical symbols & representations are fairly correct; executes algorithms correctly for the most part.	Explanations are clear for the most part; arguments and reasons are for the most part sound. Makes relatively good use of language, graphs, tables and diagrams to convey ideas
2	Shows some understanding of the strategies, principles and procedures required for the solution, reasoning is partly sound, partial solution is given.	Calculations, drawings & measurements are barely adequate; mathematical symbols & representations are correct some of the time. Starts algorithms but does not follow through completely to the end.	Explanations are given but are weak/ unclear at points; arguments/ reasons are not too strong. Use of language, graphs, tables and diagrams partly helpful unclear.
1	Shows little understanding of the strategies, principles and procedures needed to solve the problem, reasoning is inconsistent or inappropriate. Solution is unsatisfactory.	Very few of the calculations, measurements and drawings are accurate; mathematical symbols and representations are rarely correct. Unable to execute algorithms correctly.	Explanations are unclear; arguments/ reasons are weak. Use of language, graphs, tables and diagrams was not helpful.

Created by J. Halliday (2013)

(f) CPEA Rubric

**Rubric for Scoring a Book Report**

<b>Dimensions</b>	<b>Weight</b>	<b>Marks Allocated</b>
<b>Organisation</b>	<b>4</b>	
<ul style="list-style-type: none"><li>• Good organisation, details are logically ordered</li><li>• Sharp sense of beginning and end</li></ul>	3 - 4	
<ul style="list-style-type: none"><li>• Organised, details are sometimes mis-ordered</li><li>• Clear beginning and end</li></ul>	2	
<ul style="list-style-type: none"><li>• Some organisation, details jump around</li><li>• Start and end unclear</li></ul>	1	
<b>Quality of Information</b>	<b>4</b>	
<ul style="list-style-type: none"><li>• Supporting details specific to subject</li></ul>	3 – 4	
<ul style="list-style-type: none"><li>• Some details are not supporting the subject</li></ul>	2	
<ul style="list-style-type: none"><li>• Details are insufficient</li></ul>	1	
<b>Personal Response / Creativity</b>	<b>4</b>	
<ul style="list-style-type: none"><li>• Very original presentation of response to book</li></ul>	3 – 4	
<ul style="list-style-type: none"><li>• Fairly organized presentation</li></ul>	2	
<ul style="list-style-type: none"><li>• Minimal originality in personal response</li></ul>	1	
	<b>TOTAL</b>	

Now you should be on your way to create rubrics for the various performance tasks that you give to your pupils whether for feedback purposes or as summative assessments for the mark sheets and school reports.

## CHAPTER 8

### PROTFOLIO ASSESSMENT

Nittko (2004) defined a portfolio as a 'limited collection of a pupil's work used for assessment purposes either to present the pupil's best work(s) or demonstrate the pupil's educational growth over a given period of time' (p. 522). This definition implies that a portfolio is different from a folio that may be described as a collection of a pupil's work. This definition also implies that a careful selection of the pieces of work a pupil does must take place.

Gronlund (2003) argues strongly that a collection of work in a folder is not necessarily a portfolio. There needs to be some clearly specified rule governing the selection of the pieces. There must be some organizing principle that is used to put the pieces together. However, Huber and Freed (2000) describe a type of portfolio referred to as the *all-inclusive portfolio*. This is a collection of work that a pupil produces in a course. We see then that writers differ on what constitutes a portfolio.

#### 8.1 Types of portfolios

The literature also shows that different writers use different terms to describe various types of portfolios. For the purpose of our discussions, in this manual we will consider four types: all-inclusive, developmental, showcase and evaluation portfolios.

##### ***All-inclusive Portfolio***

As stated above, this is a collection of work a pupil produces over a period of time, say for a unit of work or a term. It is a complete record of pupils' achievement, for teachers and pupils to review. It can include projects, papers, homework, laboratory reports and classroom tests. It may also include painting, photographs, sketches, and articles that are relevant to the particular course of study that pupils find interesting and useful. Many teachers begin with this type of portfolio and later make selections to develop other types of portfolios.

##### ***Developmental Portfolio***

A developmental portfolio contains examples of pupils' work along with comments that demonstrate how the pupil has performed over a given period of time. It usually consists of first drafts of pupils' assignments as well as improved drafts after teachers have provided feedback. This approach is useful for formative evaluation purposes. The pupils' role is critical here since

pupils must focus on their weaknesses and attempt to improve their work. Pupils' self-evaluation and self-management skills are also critical to the success of this type of portfolio. Nitko (2004) describes this type as '*a growth and learning progress portfolio*'

This type of portfolio is useful in developing skills in many areas of classroom work such as essay writing, language skills and literacy studies. For example, teachers might give pupils a descriptive essay or a persuasive essay to write. They may discuss the strengths and weaknesses with pupils, and after a period of teaching specific concepts to correct areas of weakness, provide pupils with the opportunity to write a second essay so as to assess pupils' growth and development. The process may be repeated and a third opportunity provided for further improvement.

### ***Showcase Portfolio***

This involves the presentation of pupils' best work. The best works of a pupil are selected to provide evidence of the level of achievement attained. The portfolio can be used to provide evidence to parents at teacher-parent conferences, or it can be used as a showcase for the school's exhibition to demonstrate what the school is doing, or it may be used to show the teacher of the next class what the pupils are capable of doing.

### ***Evaluation Portfolio***

This involves specially selected pieces of work that are used to assess pupil learning, usually to give a grade for the course or part of the course. Since different pupils might do different assignments, it is important that clear criteria be provided for the selection of pieces, whether the teacher does the selection or the pupil does the selection.

## **8.2 Contents of Portfolios**

There are several ways of organizing portfolios. Portfolios can be tailored to meet specific purposes. The content and purposes may change from one situation to another. Fenwick and Parsons (2004, p.149) provide a list of pieces of pupils' work that may be included in portfolios:

1. Formal written papers, articles, descriptions, case studies
2. Assessment inventories (e.g. personality or learning style inventories)
3. Photographs or drawings of learner-created products, artwork
4. Video tapes of learner presentations
5. Journal, memos, personal responses
6. Written reports, attestations to learner performance by others, e.g. peers, colleagues, supervisors
7. Written observations of performance contributed by the instructor

**Table 8.2. Sample Ideas for Portfolios**

LANGUAGE ARTS	SOCIAL STUDIES
<p>Letter to classmates inviting them to a birthday party</p> <p>Application for a vacation job</p> <p>Different types of composition/essay</p> <p>Different types of articles</p> <p>Instruction on how to do something</p> <p>Short stories</p> <p>Poems</p> <p>Pictures that tell a story</p> <p>Selected classroom tests</p> <p>Self -assessment on reading / writing skills</p> <p>Plans for improving skills</p>	<p>Map of your country showing the parishes and historical sites</p> <p>Notes on the agricultural products of Grenada</p> <p>Articles on the contribution of these products to the economic development of your community/country</p> <p>Essays on the national heroes and their contribution to the social/ economic development of Grenada</p> <p>Report on types of groups and their roles at the community and national levels</p> <p>Articles on CARICOM</p> <p>Selected classroom tests</p>
MATHEMATICS	SCIENCE
<p>Selected classroom assignments</p> <p>Selected homework assignments</p> <p>Investigations and projects completed</p> <p>End of unit tests</p> <p>End of term tests</p> <p>Challenging exercises completed</p>	<p>Report on laboratory work</p> <p>Articles on topics covered in class</p> <p>Notes on topics discussed in class</p> <p>Selected classroom tests</p> <p>Projects and investigations</p> <p>End of unit tests</p>

### 8.3 Eight Steps in Designing a Portfolio Plan

1. Determine the criterion and/or standards for the portfolio assessment system
2. Translate the criteria and/or standards into observable behaviours
3. Using the criteria, examine the scope and sequence of the curriculum to determine an approximate time frame for collecting evidence and completing evaluations
4. Determine the stakeholders in the portfolio model
5. Determine the types of evidence to be collected
6. State the method by which the evidence will be transformed into scores
7. Establish a system for reporting assessment information and decisions
8. Establish a series of exemplary pieces/portfolios to provide a comparison

*Adapted from: Shaklee, Barbour, Ambrose & Hansford (1999; p. 66).*

### 8.4 Important Questions to Ask When Designing a Portfolio System

**Why?** Why is a portfolio system being undertaken? This has to do with the purpose of the portfolio system. Two main purposes were discussed when the definition of portfolio was given at the beginning of this chapter. But there are others. McMillan (2004) identified five (5) of these:

- (i) To improve pupils' learning
- (ii) To encourage pupils to take responsibility for their own learning
- (iii) To evaluate the programme effectiveness
- (iv) To develop pupils' self-assessment skills
- (v) To grade pupils' accomplishment

**How?** How will the assessment be done? This is a critical point. Teachers have to decide if they are going to use checklists, rating scales, descriptive scoring rubrics, observation schedules or anecdotal records. Multiple methods should be used in the process of evaluating a portfolio. Allied to this is this question is **WHEN** will the assessments be done.

**When?** Teachers must decide if they are going to score each piece as it is written and give pupils an opportunity to redo assignments to show improvement. In other words, how much weight should they put on development aspects and how much weight on the summative aspects. It is important to emphasize as well that pupils must have multiple opportunities to demonstrate the important skills that are being assessed

**Who?** Will pupils be asked to evaluate their own work? Will they be asked to evaluate the work of their peers? Are there any tasks that parents or other adults will be asked to evaluate? If the answer to any of these questions is 'yes', then the next question is '*What part will these assessments play in the final grade?*' In some cases, the teachers may wish the pupils to employ self-assessment and peer-assessment strategies. But if the portfolio is high stakes, then it would be more appropriate for the classroom teacher and perhaps a colleague to do the assessment.

**What?** The **WHAT** question has many parts. First, what should be included? This has to be specified at the beginning. When dealing with an all-inclusive portfolio, an important consideration is which pieces should be graded? Will pupils have to select their best pieces of work for grading purposes? What is the grading policy? Pupils need to know the answers to these questions before they begin to put together the portfolio.

**Where?** Where will the portfolios be stored? Is there sufficient space to keep portfolios over a number of years or will teachers only keep a sample and the remainder returned to pupils?

## CHAPTER 9

### THREE IMPORTANT PSYCHOMETRIC ISSUES

There are three important qualities that are required in order if teachers and other critical stakeholders are to make sound judgments and decisions using the data from tests and assessments. First, assessments must be fair. Second, the assessments must be valid. Third, the scores must be reliable. Each of these requires several pages to treat the concept in full. We will confine our discussion to a short treatise on each.

#### 9.1 Fairness

Nitko & Brookhart (2007) suggest that a fair assessment or test is one that provides scores that (a) are interpreted and used appropriately for specific purposes (b) do not have negative or adverse consequences as a result of the way they are interpreted or use and (c) promote appropriate values (p.512). The test or assignment must be designed in a way that provides all pupils an opportunity to demonstrate their knowledge and achievement.

For a test to be fair, the teachers must test what they have taught or the information that is in the appointed text book to which the pupils have access and are directed to study. The test cannot contain tasks that pupils did not have an opportunity to study. The test must be based on concepts and skills in the designated syllabus that pupils had the opportunity to learn.

The assessments must reflect the relative emphases that the teacher used during instruction. It is common to hear pupils complaining that a teacher spent three weeks on a topic, but it was not tested. However, the same teacher spent one day on a certain topic and two substantial questions came on that topic.

A fair test must not contain any material that is blatantly offensive to any group of pupils or offends any ethnic, racial or gender group. Moreover, the reading level of the tasks should be appropriate for the grade level. Fairness extends to the availability of materials required for the test, classroom conditions when the test is written, the temperature of the room and the general physical conditions under which the test is taken.

### ***Key components of fairness***

1. Items match important learning targets
2. Items match the type of tasks to which pupils were exposed during instruction
3. Items are based on information that pupils had opportunity to learn
4. Items do not favour one group over another
5. The language and format are appropriate to the grade level
6. The language is not offensive to particular group or groups
7. Adequate time is given for pupils to complete the tasks comfortably
8. The difficulty level is appropriate to the age group tested
9. Accommodation is made for pupils with special needs

## **9.2 Validity**

Nitko & Brookhart (2007) defined validity as the soundness of the interpretation and uses pupils' assessment results. Therefore, the assessor must combine evidence from a variety of sources that demonstrate that the interpretations are consistent and correct. This is why valid assessments can only be based on evidence gathered from a variety of sources. These include more than one task, more than one type of tasks, and tasks tested on more than one occasion.

Traditionally, psychometricians speak of content validity, construct validity, criterion validity, face validity, and more recently, consequential validity. These are briefly illustrated in the table below.

**Table 9.1 Major considerations in validation** (Adapted from Linn & Miller, 2005; p.72)

Consideration	Procedure	Meaning
Content validity	Compare the assessment tasks to the specifications	How well do the assessment tasks represent the domain of tasks; are important content emphasized
Construct validity	Are the critical cognitive processes represented?	How well does pupils' performance enable you to assess the critical processes or constructs?
Criterion related validity	Compare assessment results with another measure of performance on a similar test either concurrently or at a later date	How well does performance on this assessment compare or predicts performance on a concurrent or future test?
Consequential validity	Evaluate the effects of the use of the assessment results on teachers and pupils	How well do the assessment results accomplish the intended purposes and avoid unintended effects?
Face Validity	Compare test items to the types of practice items to which pupils were exposed	How much do the test items look similar to what pupils have been taught?

Constructing a table of specifications is one important device that can be used to ensure that assessments have good content, construct and criterion related evidence of validity. Using the same table of specifications can go a long way to ensure that these psychometric qualities are covered in creating parallel tests or assessments.

### 9.3 Reliability

Reliability is another critical characteristic of sound assessments. Linn & Miller (2005; p.69) suggest that: "Reliability is concerned with the consistency, stability, and dependability of scores". Psychometricians have derived various methods of estimating the reliability of test scores. There are methods relating to the internal consistency of the test, parallel forms reliability, generalizability indices, to name a few. We will not focus on these in this manual Two of the procedures are provided in the Appendices for those interested in the procedures.

However, it is important to bear in mind the important factors that impact on the reliability of test scores.

***Factors that affect the reliability of assessments***

CONSTRUCTION OF TESTS	SCORING OF TESTS
1. Number of items; not too few; or too many	1. A marking key is required
2. Difficulty level of the items. Use a balance of easy & challenging items	2. Marking when one is tired; marking under poor lighting
3. Items need to be carefully worded	3. Central tendency errors; avoiding high or low scores
4. Balance coverage of the syllabus as taught	4. Marking too easy or too hard
5. Poor presentation of test items	5. Halo effect; bearing in mind whose pupil script it is you are marking
6. Inadequate time	6. Severity errors
7. Write out the answers as you prepare the question. For the pupil double the time it took you to answer the questions	7. Use a scoring key that has been checked by at least one other colleague

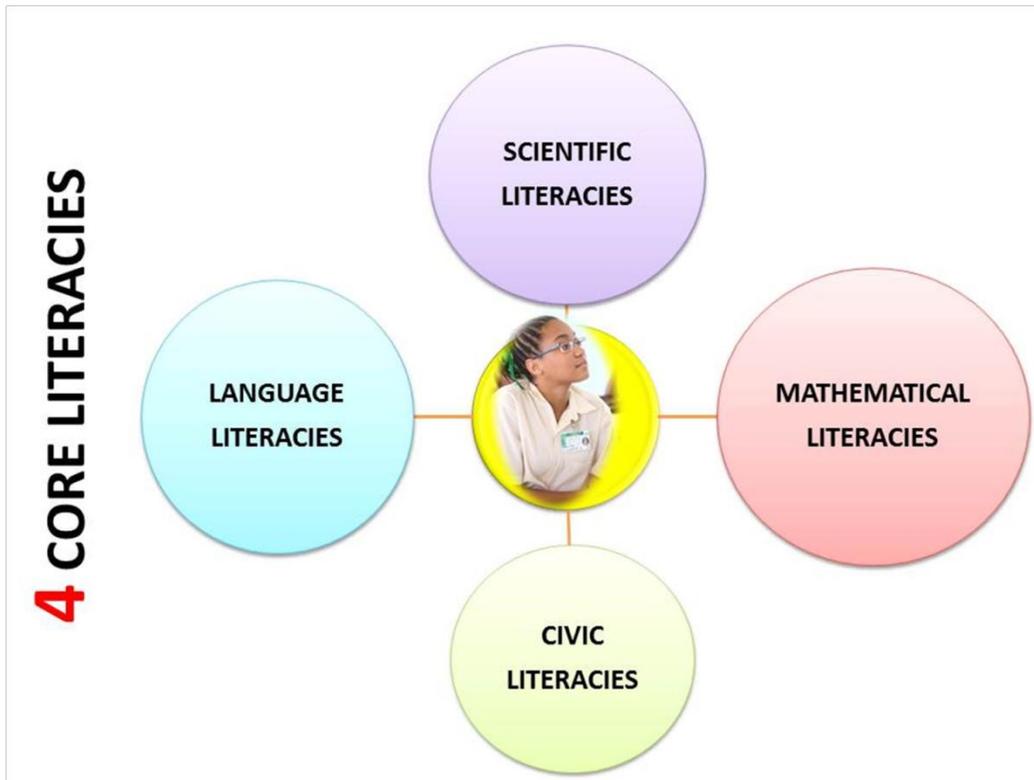
Reliability is critical. If the test is not marked reliably, one cannot have confidence in the results. One cannot generalize over the results. Consider the case of a doctor certified but unable to treat patients or an engineer who builds a bridge which collapses and kills hundreds of people. So too, consider the harm done to hundreds of pupils who are given unfair tests, or are marked unfairly and consider the psychological harm done to thousands of pupils, because the test is not valid, or the marking is not done in a reliable manner.

It is important therefore that continuous assessment strategies employed meet the rigorous criteria for validity, reliability and fairness.

## CHAPTER 10

### Caribbean Primary Exit Assessment

The Caribbean Primary Exit Assessment (CPEA) incorporates internal assessment and external assessment strategies. The internal assessments require pupils to do several classroom tasks. These include but are not limited to (1) project (2) book report (3) writing portfolio. In preparing pupils for these assessments, teachers are expected to use formative assessment strategies to give pupils feedback as they progress in doing these tasks. In particular, teachers are expected to give practice using 'can do' skills as they prepare them for the external assessment in English, Mathematics, Science and Civics or (History and Social Studies). They will also be required to give end of unit tests (summative tests) and submit these to the examination board.



Teachers are also expected to engage pupils in self-assessment activities. Pupils will be required to work in groups for specific tasks, assess each other and provide feedback (peer assessment). Also opportunities should be provided for pupils to do self-reflection, assess their own progress, and plan strategies to rectify their weaknesses. The programme therefore encompasses a variety of strategies in both formative and summative assessments.

The proposed assessment scheme for the OECS is the Caribbean Primary Exit Assessment model which uses internal and external assessments, portfolios, projects and book reviews. The internal assessments, conducted by the classroom teacher, will contribute 40% of the marks and the external assessments will consist of written external examination papers that account for 60% of the marks.

### Internal Assessments

These are divided into two:

- In subset A, the teacher and the pupil work on projects account for 40 marks; second a set of practice exercises, referred to as can-do skills account for 40%, and thirdly, pupils' self-assessment tasks account for 20 marks – making a total of 100 marks.
- In subset B, teachers' tests contribute 25 % of the marks for each of the subjects – English, Mathematics, Science and Social Studies.

### External Assessment

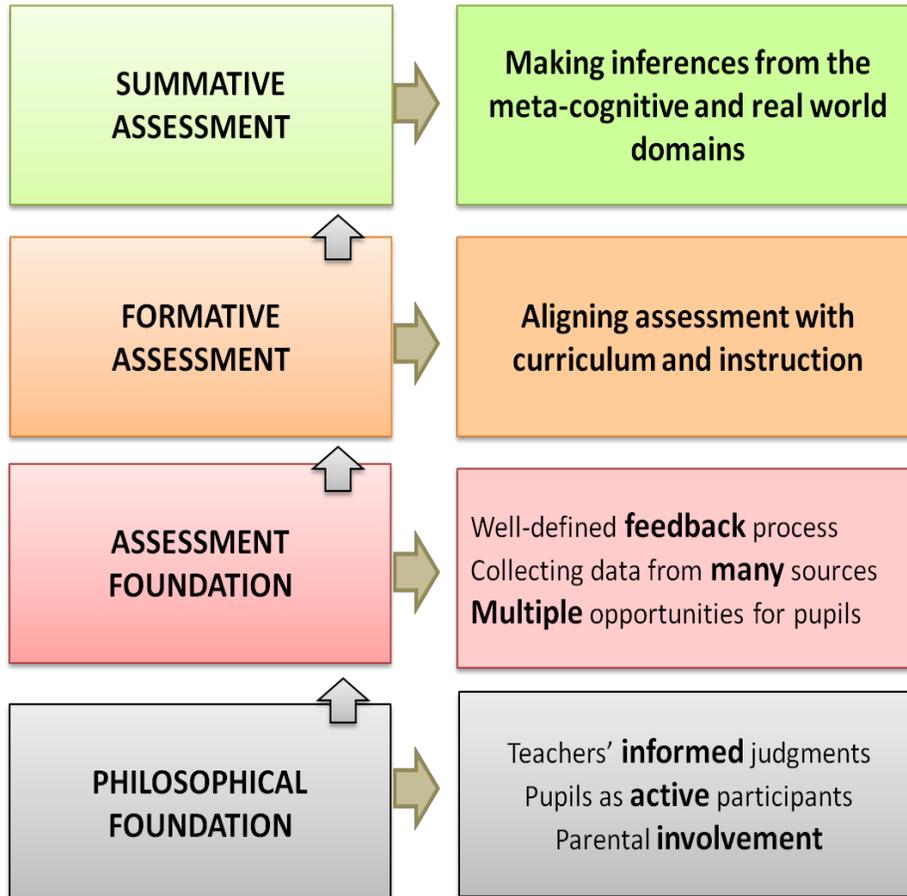
An examination for each of the subjects (English, Mathematics, Science and Social Studies) contributes 100 marks for each subject.

The table below illustrates the weights given to the various assessment components.

**Table 1.2 CPEA Structure**

Internal 40%				External 60%	
Teacher & Pupil		Teacher Prepared Tests		CXC	
Project	40	English	25	English	100
Practice Can Do Skills	40	Mathematics	25	Mathematics	100
Self-Assessment	20	Science	25	Science	100
		Social Studies	25	Social Studies	100
<b>100</b>		<b>100</b>		<b>400</b>	
<b>200</b>					

## CXC APPROACH TO CPEA



### **Assessment Tasks associated with the CPEA**

1. **Project:** The project should focus on something that is relevant and meaningful to study in pupils' individual community. It must incorporate knowledge and skills from all four areas: Language, mathematics, science and civics. The project is usually done as a group task to encourage collaborative attitudes, but there will be opportunity for individual input as well.
2. **Portfolio:** Selected writing pieces and other relevant compositions by pupils
3. **Book review:** Comments by pupils on an interesting (useful) book that they have read. Guidelines or subheads for pupils to use are provided.

All of these assessment tasks have been discussed in previous chapters.

## GLOSSARY

<b>Term</b>	<b>Meaning</b>
<i>Affective domain</i>	This relates to behaviours, attitudes, feelings, values and interests and personality issues that affect learning.
<i>Assessment</i>	The process of gathering information about students' attainment for the purpose of making educational decisions.
<i>Authentic Assessment</i>	Assessment approach that involves performance based tasks designed in such a way that the task is as close to real life situations as possible. In some cases, simulation type exercises are used, since they approximate the real situation.
<i>Alternative Assessment</i>	Assessment devices other than multiple-choice and other selected-response type items
<i>Continuous Assessment</i>	Consists of a variety of devices and procedures to evaluate students' performance for the purpose of improving student learning and the effectiveness of the instructional programme as well as other educational decisions.
<i>Internal assessment</i>	Refers to assessment of students' work by the classroom teacher.
<i>Performance Assessment</i>	(A short form for performance-based assessment) is a system of assessment that requires students to demonstrate what they know or can do by creating a response verbally or in writing, making a presentation, constructing a product or performing a specific task.
<i>Portfolio Assessment</i>	A technique that involves students assembling pieces of work according to prescribed principles and the evaluation of those pieces using agreed predetermined criteria. Some writers insist that the pieces should include evidence of students' reflection on their work; others do not.

<b>Term</b>	<b>Meaning</b>
<i>School-based Assessment</i>	Assessment of students' progress / performance carried out by the classroom teacher during the course of instruction. The assessment tasks may be entirely controlled by the teachers or some may be done following specific guidelines set out by an external agency.
<i>Benchmark</i>	A term used to identify content standards for a particular age group or age groups. They represent the broad aims of a programme or course for a grade or set of grades. Standards are broken down into benchmarks and benchmarks are broken down into specific objectives or learning targets.
<i>Checklist</i>	A device used to assess the existence of various attributes. It consists of a set of specific elements and a place for marking whether or not each element is present.  Checklists can be used to assess characteristics of process, procedures or product, or behavioural or attitudinal attributes.
<i>Cognitive</i>	Refers to mental abilities such as recall, comprehension, application, analysis, synthesis, problem solving etc. It involves skills dealing with memory and processing of information.
<i>Cognitive Domain</i>	Refers to behaviour related to thinking, memorising, reasoning, analysing and problem solving.
<i>Completion Item</i>	Refers to an assessment item that requires the pupil to supply a word or phrase to complete a statement so that it makes sense.
<i>Construct validity</i>	Refers to the degree to which a test measures certain traits or abilities that it is intended to measure.
<i>Content validity</i>	Refers to the degree to which a test samples the subject matter. This may include behaviour, knowledge, skills and attitudes. To the extent that the test is a representative sample of all areas of the course to that extent there is content validity.
<i>Correlation</i>	The extent to which two variables vary concomitantly – that is, as one increases in value, the other increases or as one

<b>Term</b>	<b>Meaning</b>
	decreases in value the other decreases in value. The extent of the correlation is usually expressed by a correlation coefficient that has a value between is and positive or negative.
<i>Criterion related validity</i>	The extent to which there is agreement between the test score of an instrument and one or more external instruments that measure the same attributes. We can speak of concurrent validity – if we are interested in assessing the extent to which two or more instruments measure the same attributes or we can speak of predictive validity if we are concerned with the extent to which an instrument ranks students at one point in time to the way in which a similar instrument ranks students subsequently.
<i>Essay</i>	Refers to an assessment item that requires a response in several sentences to a direct or indirect instruction.
<i>Evaluation</i>	A systematic process of determining or judging the merit or worth of students’ product, performance or behaviour or for judging the value of an educational programme; policy, process or procedure.
<i>Formative evaluation</i>	The process of judging the worth of students’ performance while instructional is in process. Oral questions, observations or tests may be used to provide the teacher with information whereby a judgement is made on the students’ progress and hence what courses of action are needed based on that judgment.
<i>Summative evaluation</i>	Refers to evaluation of students’ performance or achievement at the end of a unit, course of work or programme. Summative evaluation focuses on the attainment or achievement levels.
<i>Goals</i>	General statements of what students are expected to know and be able to do after a period of instruction lasting for several weeks, a term or even a year. The statements usually represent

<b>Term</b>	<b>Meaning</b>
	the philosophy that the policy makes of curriculum directors hope to achieve by setting up the course.
<i>Halo effect</i>	A type of rater effect in which the teacher or marker evaluating a set of tasks for several students allow their evaluation to be influenced by selected pieces of information about students rather than by the relevant aspects of the students' work.
<i>Meta-cognitive</i>	A term used to describe the psychological processes that enable individuals to direct and guide their learning activities. These processes include planning, monitoring and evaluating the behaviour and skills, the ability to evaluate progress and to re-direct or refocus their planning and activities in directions that are likely to ensure success.
<i>Objectives</i>	A statement that specifies on observable and measurable terms what students are expected to know or be able to do as a result of instruction.
<i>Behavioural objective</i>	An educational outcome that specifies the condition under which the knowledge, behaviour or skill learnt is to be exhibited.
<i>Educational objectives</i>	These are general statements of what students are expected to learn to be able to do usually after a lesson.
<i>General objectives</i>	Broad or general statements that indicate the focus of a course of programme. The term is similar to educational goals. Global objective may be used as a synonym for general objective.
<i>Global objective</i>	See objective—general objective
<i>Specific objective</i>	States in specific terms what students are expected to do at the end of a lesson. Learning targets, learning outcomes and

<b>Term</b>	<b>Meaning</b>
	behavioural objectives are terms used almost in the same way as the term specific objective.
<i>Psychomotor Domain</i>	Range of skills needed to function and perform ordinary practical tasks.
<i>Portfolio</i>	A collection of students' work, artefacts or assignments according to some prescribed principles for purpose of demonstrating the level of attainment or skill achieved.
<i>Project</i>	An extended performance task that results in long-term activity and engages behaviours from one or more of the three educational domains, cognitive, affective and psychomotor domains.
<i>Reliability</i>	This is the consistency with which repeated tests measure the same traits or skills. Implied in the term is the extent to which stakeholders can depend on the test to indicate students' level of achievement.
<i>Rubric</i>	Also referred to as scoring rubric or descriptive scoring rubric. A coherent set of rules or guidelines for scoring or rating assignments, performance-based tasks, achievement, behaviour, attitudes etc.
<i>Generic scoring rubric</i>	A set of rules or guidelines for scoring a wide range of similar tasks, assignments or performances.
<i>Holistic rubric</i>	Consists of a set of guidelines to evaluate a performance of level of attainment as a whole.
<i>Task-specific scoring rubric</i>	A set of guidelines for scoring a specific task. The guidelines will not be applicable to any other task.

<b>Term</b>	<b>Meaning</b>
<i>Standards</i>	Statements about what students are expected to learn from a programme of study. Content standards express the knowledge and skills that students are expected to master. They represent the overall goals of a course or programme. Performance standards refers to the degree or level at which students are expected to perform.
<i>Short Answer</i>	An assessment item that poses a task in question format, an incomplete statement format, or as an instruction, so that the response can be given as, one or two statements, a number, a short calculation or by mathematical statements.
<i>Table of specification</i>	This is usually a two-way grid that summaries how a test instrument should be developed. Usually content or objectives are expressed on the vertical dimension and cognitive processes on the horizontal domain. The test developer or planner must decide, using professional judgment or established guidelines, how to assign various items to the cells of the grid.
<i>Task</i>	<p>The Revision of Bloom’s taxonomy however, requires considerable adjustment to the traditional way of preparing a task of specifications.</p> <p>An assessment activity or assignment that is to be done by a student or group of students.</p> <p>Task is a comprehensive term. A test item or a question can be referred to as a task.</p>
<i>Taxonomy</i>	A classification system in which the items are arranged in a systematic, ordered manner. Bloom’s taxonomy is the most well- known taxonomy or classification scheme in education.
<i>Test</i>	An instrument consisting of a set of items, questions or tasks that are served to measure one’s ability or achievement.
<i>Criterion-referenced test</i>	A test that focuses on the objectives of the content. Its purpose is to determine how well students master these objectives. It is

<b>Term</b>	<b>Meaning</b>
	scored according to pre-established standards of mastering. The performance of other students is not of primary concern in grading a student's performance; rather it is the student's performance in relation to the established standards.
<i>Norm-referenced test</i>	A test designed to maximise discrimination among examinees. The original sample on which the test is scored provides a distribution that is used to compare future samples. The original sample becomes the 'norm' group.
<i>Standardised tests</i>	<p>Tests that meet specific criteria:</p> <ul style="list-style-type: none"> <li>(i) They are constructed using prescribed guidelines.</li> <li>(ii) They are administered under prescribed conditions.</li> <li>(iii) They are scored using definite rules.</li> <li>(iv) The results are compared to a reference group.</li> </ul> <p>Usually the reliability and validity evidence of commercialised standardised tests as well as information on the norm or reference group are provided with the tests.</p>
<i>Trait</i>	A characteristic or attribute of an individual. In its broadest sense a trait can refer to ability. In most educational applications however, one thinks of narrower aspects of ability such as reasoning ability, spatial ability. In psychology self-esteem, motivation, are traits, sometimes called constructs.
<i>Validity</i>	Refers to the soundness or accuracy with which one can make inferences from the test scores or assessment devices. The main types are: content validity, construct validity and criterion related validity. More recently consequential validity has been added.

## BIBLIOGRAPHY

- Airasian, Peter (2000). *Assessment in the Classroom: A Concise Approach*, 2<sup>nd</sup> edition. Boston, MA: McGraw Hill, Higher Education.
- Anderson, Lorin W. & Krathwohl, David R. (eds.) (2001). *A Taxonomy for Learning, Teaching and Assessing*. NY: Addison Wesley Longman Inc.
- Arter, Judith & McTighe (2001). *Scoring Rubrics in the Classroom*. Thousand Oaks, CA: Corwin Press, INC – Sage Publication Company
- Benjamin, Bloom (ed.) (1956). *Taxonomy of Educational Objectives, Book 1 – Cognitive Domain*. London: Longman.
- Broomes, Desmond R & Halliday, James A. (1991). Major Issues in Assessing Mathematics Performance at 16+ Level: A Caribbean Perspective in Mogens Niss (Editor). *Cases of Assessment in Mathematics Education- An ICMI Study*. Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Capper, Joanne (1996). *Testing to Learn – Learning to Test*. Newark, Delaware: International Reading Association, Academy for Educational Development (AED), Washington.
- Carey, Lou (2001). *Measuring and Evaluating School Learning: 3<sup>rd</sup> Edition*. Needham Heights, MA: Allyn & Bacon.
- Chatteriji, Madhabi (2003). *Designing Educational Tools for Educational Assessment*. Belmont, CA: A Pearson Education Inc.
- Corbin, Kristin Chattel Houses in Ministry of Education, Youth Affairs and Sports, *New Horizons* p 15-16.
- Davis, Barbara, C. (2001). *Tools for Teaching*. San Francisco, CA: Jossey & Bass
- Deere MT (1974). Assessment of Project Work. In H.G McIntosh (Editor). *Techniques and Problems of Assessment – A Practical Handbook for Teachers*. Hill St, London: Edward Arnold Pub.
- Ebel, Robert. L (1979). *Essentials of Educational Measurement, 3<sup>rd</sup> Edition*. Englewood Cliffs, New Jersey: Prentice Hall.
- Glatthorn, Allan A. (1999). *Performance Standards and Authentic Learning*. Larchmont, NY: Eye on Education.

- Gronlund, Norman E. (2006). *Assessment of Pupil Achievement*, 8<sup>th</sup> edition. Boston, MA: Pearson Education Inc.
- Haladyna, Thomas M. (1997). *Writing Test Items to Evaluate Higher Order Thinking*. Needham Heights, MA: Allyn & Bacon.
- Halliday, James A. (2000). *New Directions for mathematics Assessment in Caribbean Secondary Schools- Authentic Assessment Tasks* Unpublished.
- Halliday, James A. (2004) *Manual on Continuous Assessment*. Prepared for the Grenada Ministry of Education Assessment Project – Unpublished.
- Halliday, James A. (2005). *Measuring Learning and Achievement in Secondary Schools: A Booklet* prepared for Ministry of Education, Barbados Unpublished.
- Halliday, James A. (2010). *Principles and Procedures for Testing, Measurement and Assessment in Schools*. Unpublished.
- Halliday James A (2012). *The impact of Holistic and Analytic Scoring on Rater Reliability and the Dependability of mathematics Performance Test Scores* Ph D thesis for UWI
- Hart, Diane (1994). *Authentic Assessment: A Handbook for Educators*. Melono, Park, CA: Addison Wesley Pub. Co.
- Huba, Mary E. & Freed, Joanne (2000). *Learner Centred Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Needham Heights, MA: Allyn & Bacon.
- Lesh & Lamon (1992). 'Interpreting Responses to Problems with Several Levels and Types of Correct Answers' in R. Lesh & Lamon (eds.), *Assessment of Authentic Performance in*
- Linn R L& Miller (2005) *Measurement and Assessment in Teaching* Upper Saddle River, NJ: Pearson Prentice Hall
- Maki, Peggy (2004). *Assessing for Learning*. Sterling, VA: Stylus Publishing Company
- Marzano, Robert (2001). *Designing a New Taxonomy of Educational Objectives*. Thousand Oaks, CA: Corwin Press Inc., A Sage Publication Company.
- Marzano, Robert (2010). *Formative Assessment and Standards Based Grading: Classroom Strategies That Work*. Bloomington, IN: Marzano Research Laboratory.
- McMillan, James H. (2007). *Classroom Assessment: Principles and Practice for Effective Instructors*, 4<sup>th</sup> edition. Boston, MA: Pearson Educational Inc.
- National Council of Teachers of Mathematics (1995). *Assessment Standards for School Mathematics*. Reston, VA: NCTM.

- National Council of Teachers of Mathematics (2000). *Assessment for School Mathematics: A Practical Handbook*. Reston, VA: NCTM
- Nitko, Anthony & Brookhart, Susan. (2007). *Educational Assessment of Pupils*, 5<sup>th</sup> edition. Upper Saddle Rd., NJ: Pearson Prentice Hall Inc.
- Nitko, Anthony (1999). 'Curriculum-based Continuous Assessment: A Framework for Concepts, Procedures and Policy' in *Patricia Broadfoot (ed.) Assessment in Education: Principles and Practice*. Oxfordshire, UK: Carfax Publishing Co.
- Nitko, Anthony (1996). *Educational Assessment of Pupils*, 3<sup>rd</sup> edition. Englewood Cliffs, NJ: Prentice Hall Inc.
- Payne, David (2003). *Applied Educational Assessment*, 2<sup>nd</sup> edition. Belmont, CA: Wadsworth Thompson Learning
- Popham, James. (2008). *Transforming Assessment*. Alexandria, VA: Association for Supervision and Curriculum.
- Sax, Gilbert (1997). *Principles of Educational and Psychological Measurement and Evaluation*, 4<sup>th</sup> edition. Belmont, CA: Wadsworth Publishing Co.
- Shaklee, Barbara, Ambrose & Hansford (1999). *Designing and Using Portfolios*. Needham Heights, MA: Allyn & Bacon
- Selek, William R. & Galls, Michael A. (2002). *Fundamentals of Mathematics*, 9<sup>th</sup> edition. Upper Saddle Riva, NJ: Prentice Hall
- Ward, Anne & Murray-Ward, Mildred (1999). *Assessment in the Classroom*. Belmont, CA: Wadsworth Publishing Co.
- Worthen B.R, White K.R, Fan X, and Sudweeks R. (1999). *Assessment in Schools*. Reading, MA: Addison Wesley Longman.

# Skills & Competencies to be Assessed

## APPENDIX

LANGUAGE	MATHEMATICS	SCIENCE	CIVIC
<ul style="list-style-type: none"> <li>listening with a high degree of understanding to instructions, descriptions, explanations and narration in Standard English, in a familiar accent and in the vocabulary and sentence structure appropriate to the age of the student;</li> <li>speaking by using words exactly and precisely for his age to communicate thoughts and feels; demonstrate spontaneity in speaking in a variety of situations;</li> <li>thinking creatively, critically and constructively;</li> <li>responding sensitively, to varied and meaningful literature and other forms of art at the appropriate level;</li> <li>reading effectively and for different purposes a variety of print or electronic media;</li> <li>expressing oneself in the following forms of writing: explanations, narratives, descriptions, letter writing and do so legibly; and</li> <li>using various forms of visual literacy to interpret and gain information</li> </ul>	<ul style="list-style-type: none"> <li>recognizing and using number concepts;</li> <li>understanding and using fractions, percentages, proportions and decimals;</li> <li>application of mathematical concepts, facts and algorithms related to number, money, measurement and geometry (space and shape);</li> <li>performing tasks involved in measurement;</li> <li>using tally charts and other methods to collect and record data and being able to read coordinates;</li> <li>approaching problem-solving and inquiry at a level appropriate to the age of the student; and</li> <li>applying principles to solve worded problems and everyday problems</li> </ul>	<ul style="list-style-type: none"> <li>observing or using the senses to find out about objects or events;</li> <li>classifying, based on properties;</li> <li>predicting or describing in advance the outcome of an event;</li> <li>measuring by using instruments;</li> <li>recording by using appropriate language and appropriate units and drawings, diagrams, tables, charts and graphs;</li> <li>interpreting by comparing and drawing conclusion;</li> <li>evaluating by assessing, making suggestions and conclusions;</li> <li>designing procedures to obtain information;</li> <li>demonstration of an appreciation of the value of science as a discipline, as well as the role of science in technological advances and in everyday decision making in the home, community and workplace</li> </ul>	<ul style="list-style-type: none"> <li>an understanding of power, authority and governance;</li> <li>an understanding of the creation, maintenance and change of government;</li> <li>an understanding of how governments can be kept responsive to citizens; and</li> <li>the ability to see things from another's point of view</li> </ul>

### Summary of the Quellmalz Taxonomy

Classification	Definition
Recall	The first level of Quellmalz Taxonomy is termed <b>Recall</b> . It is similar to the <b>Knowledge</b> Level in Bloom's Taxonomy. Recall tasks would require pupils to remember key facts, recognize definitions, concepts, rules and principles. Also placed at this level is the ability to associate concepts with related concepts. So this level touches some aspects of the <b>Comprehension</b> Level in Bloom's Taxonomy as well.
Analysis	The second level in Quellmalz's Taxonomy is <b>Analysis</b> . It is believed that analysis is usually needed before one can deal with the skills of comparison and making inferences. Analysis requires pupils to divide a whole in component parts, identify part/whole relationships and identify cause and effect relationships. This is much the same as the <b>Analysis</b> Level is the Bloom's Taxonomy.
Comparison	Now that the skills of <b>Analysis</b> are developed, pupils have the skills to make meaningful comparisons. Pupils can then recognise or explain similarities and differences. It is to be noted that this level involves some aspects of Bloom's <b>Analysis</b> . But it is given a separate category to emphasize that pupils are required to go beyond breaking up a whole into parts. <b>Comparison</b> has been thought of as a level of <b>Comprehension</b> in Bloom's Taxonomy. Placing <b>Comparison</b> above <b>Analysis</b> emphasizes that to do meaningful comparisons requires higher level thinking than their <b>Comprehension, Application</b> and <b>Analysis</b> as set out in Bloom's Taxonomy.
Inference	This category requires skills in deductions and inductive reasoning. Many <b>Application</b> problems do require the use of these skills. It is therefore, unnecessary to put <b>Application</b> as a separate category. To use deductive reasoning tasks pupils are given details or evidence and are expected to arrive at the generalization. Tasks that require pupils to integrate information, to hypothesize, predict and draw meaningful conclusions from evidence are included in this level. Hence the skills given under <b>Synthesis</b> in Bloom's Taxonomy are included in this level.
Evaluation	Tasks at this level require pupils to judge the quality or worth of something, assess its credibility, use established criteria to argue logically or to reach a conclusion. Pupils have to assemble evidence and explain interrelationships based on the evidence. Bloom's level of <b>Synthesis</b> and <b>Evaluation</b> would fall in Quellmalz's <b>Evaluation</b> level.

**Thinking Skills for Different Subject Matter in Quellmalz Taxonomy**

Category	<i>Subject Matter</i>		
	Science	Social Science	Literature
Analyse	Identify components of a process, features of animate and inanimate objects	Analyse components of arguments, elements of an even	Identify components of literacy, expository, and persuasive discourse
Compare	Compare properties of objects components of processes	Compare causes an/or effects of separate events; social, political, economics, geo- graphic features	Compare meanings, themes, plots, characters, settings, arguments
Infer	Draw conclusions; make predictions; pose hypo-thesis tests and explanations	Predict, hypothesis, conclude, interpret, using historical, social, political, economic, geographic information	Infer theme, significance, characters' motivations; interrelationships of literary elements
Evaluate	Evaluate soundness of procedures, credibility of conclusions significance of findings	Evaluate credibility of arguments, decisions, reports, significance	Evaluate believability, significance, form, completeness, clarity

Source: Nitko (1996, p.27) – Educational Assessment of Pupils (Second Edition), Englewood Cliffs, New Jersey: Prentice Hall

## The Core Thinking Skills

The Core Thinking Skills focus on the mental processes and cognitive skills involved in performing learning targets and assessment tasks.

SKILL CATEGORIES	COGNITIVE PROCESSES AND EXAMPLES
<b>1.0 Focusing Skills</b> - Attending to selected pieces of information and ignoring others.	
1.1 Defining problems	Clarifying needs, discrepancies or puzzling situations
1.2 Setting goals	Establishing direction and purpose
<b>2.0 Information-Gathering Skills</b> - Bringing to consciousness the relevant data needed for cognitive processing	
2.1 Observing	Obtaining information through one or more senses
2.2 Formulating questions	Seeking new information through inquiry
<b>3.0 Remembering Skills</b> - Storing and retrieving information	
3.1 Encoding	Storing information in long-term memory
3.2 Recalling	Retrieving information from long-term memory
<b>4.0 Organising Skills</b> - Arranging information so it can be used more effectively	
4.1 Comparing	Noting similarities and differences between or among entities
4.2 Classifying	Grouping and labelling entities on the basis of their attribute
4.3 Ordering	Sequencing entities according to a given criterion
4.4 Representing	Changing the form but not the substance of information
<b>5.0 Analysing Skills</b> - Clarifying existing information by examining parts and relationships	
5.1 Identifying attributes and components	Determining characteristics or parts of something
5.2 Identifying relationships and patterns	Recognising ways elements are related
5.3 Identifying main ideas	Identifying the central element; for example, the hierarchy of key ideas in a message or line of reasoning
5.4 Identifying errors	Recognising local fallacies and other mistakes and, where possible, correcting them
<b>6.0 Generating Skills</b> - Producing new information, meaning, or ideas	
6.1 Inferring	Going beyond available information to identify what reasonably may be true
6.2 Predicting	Anticipating new events, or the outcome of a situation
6.3 Elaborating	Explaining by adding details, examples, or other relevant information
<b>7.0 Integrating Skills</b> - Connecting and combining information	
7.1 Summarizing	Combining information efficiently into a cohesive statement
7.2 Restructuring	Restructuring
<b>8.0 Evaluating Skills</b> - Assessing the reasonableness and quality of ideas	
8.1 Establishing criteria	Setting standards for making judgements
8.2 Verifying	Confirming the accuracy of claims

***An Outline of Bloom's Taxonomy of Educational Objectives: Cognitive Domain***

<b>Level</b>	<b>Explanatory Examples</b>
<b>1.00 Knowledge</b>	
1.11 Knowledge of terminology	Simple definition required
1.12 Knowledge of specific facts	Dates, events, persons, places
1.21 Knowledge of conventions	Rules of etiquette, grammar
1.22 Knowledge of trends and sequences	Processes, decisions regarding time
1.23 Knowledge of classifications and categories	Classes, sets, divisions, arrangements useful to a given field
1.24 Knowledge of criteria	Criteria to evaluate facts, principles, etc.
1.25 Knowledge of methodology	Techniques and procedures
1.31 Knowledge of principles and generalizations	Abstractions that summarize observations of phenomena
1.32 Knowledge of theories and structures	Body of principles and generalizations
<b>2.00 Comprehension</b>	
2.10 Translation of one level of abstraction to another; translation from one form to another form	Restating a problem, reducing size of communication. Giving an example
2.20 Interpretation	Reordering and rearranging, qualifying
2.30 Extrapolation	Extension of data to past or future
<b>3.00 Application</b>	Applying data to new problems
<b>4.00 Analysis</b>	
4.10 Analysis of elements	Finding assumptions, distinguishing facts from opinion
4.20 Analysis of relationships	Relevant data, causal, finding fallacies
4.30 Analysis of organizational principles	Form and style, inferring author's purpose
<b>5.00 Synthesis</b>	
5.10 Production of a unique communication	Skill in writing, telling stories, composing
5.20 Production of a plan, or proposed set of operations	Proposing hypotheses, planning units, tool designing
5.30 Derivation of a set of abstract relations	Formulation of a theory
<b>6.00 Evaluation</b>	
6.10 Judgements in terms of internal evidence	Evaluation of logical accuracy, consistency, and other internal criteria

6.20 Judgements in terms of external criteria	Evaluating theories, judging by standards, weighing standards
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*Source: Sax (1990 Table 3.2, p. 64)*

**Examples of Standards Aligned to Bloom's Taxonomy Levels**

Category	Learning targets for Assessment Teachers	Learning targets Language Arts Teachers
1.21	Define different types of tests	Explain the term 'decoding' as used in Reading
2.10	Distinguish between formative assessment and continuous assessment	Distinguish between a cloze test and a maze test
2.10	Explain the levels of Barrett's Reading taxonomy	Differentiate between phoneme and morpheme
3.00	Explain the importance of reliability in the context of high stakes testing	Use correlation analysis to determine rater consistency of a pair of scorers
3.00	Relate the purpose of testing to the type of test	Use adjectives in descriptive writing
4.20	Discuss the advantages of using norm referenced tests	Discuss the advantages and disadvantages of using a maze test
5.20	Apply Bloom's taxonomy in constructing classroom a test	Write a technical evaluation report on the pupils' performance on a test
6.10	Comment on the usefulness of the Revision of Bloom's taxonomy	Comment on the problems in using standardized Reading tests, constructed in North America, in Caribbean schools

## ***Barrett's Taxonomy***

<p><b>Literal Comprehension</b></p> <p><b><i>Recognition</i></b></p> <p>Recognition of Details Recognition of Main Ideas Recognition of Sequence Recognition of Comparison Recognition of Cause and Effect Relationships Recognition of Character Traits</p> <p><b><i>Recall</i></b></p> <p>Recall of Details Recall of Main ideas Recall of Sequence Recall of Comparison Recall of Cause and Effect Relationships Recall of Character Traits</p>
<p><b>Reorganization</b></p> <p>Classifying Outlining Summarizing Synthesizing</p>
<p><b>Inferential Comprehension</b></p> <p>Inferring Supporting Details Inferring Main Ideas Inferring Sequence Inferring Comparisons Inferring Cause and Effect Relationships Inferring Character Traits Predicting Outcomes Interpreting Figurative Language</p>
<p><b>Evaluation</b></p> <p>Judgements of Reality or Fantasy Judgements of Fact or Opinion Judgements of Adequacy and Validity Judgements of Appropriateness</p>
<p><b>Appreciation</b></p> <p>Emotional Response to Context Identification with Characters or Incidents Reactions to Author's Use of Language Imagery, Vocabulary, Feelings Produced by the Author</p>

