Provincial Reading and Mathematics Assessment Framework

Newfoundland Labrador

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Introduction

Educators use assessment data to support and improve student learning. In Newfoundland and Labrador student achievement is assessed at many levels: individual, classroom, school, district, provincial, national, and international. Assessment at each of these levels provides information about student achievement at differing intervals of time and for different purposes. Each level of assessment plays an important role in informing educational decisions. Collaboration amongst all educators is essential for ensuring assessment information is used effectively to improve outcomes for individual students and for the education system as a whole.

> "Position assessment as a strategy for improvement, not as a measurement of accountability." (Fullan, 2011)

Provincial Reading and Mathematics Assessment: An Overview

The Provincial Reading and Mathematics Assessment (PRMA) is a provincial assessment conducted annually by the Department of Education and Early Childhood Development (EECD). It takes place each May/June in Grades 3, 6, and 9, with reading and mathematics administered in alternating years. The assessment is made up of both selected response (multiple-choice) and constructed response items.

The PRMA is an assessment of curriculum outcomes from the language arts and mathematics curricula in Grades 3, 6, and 9. It is an assessment of learning at the system level. It is not a mirror of classroom assessments and should not be viewed or interpreted in the same way.

Table 1: PRMA at a Glance

PRMA is:	PRMA is NOT:
an assessment which provides only provincial level data	an assessment which provides school or individual student level data
an external assessment used to inform decisions on programs and policies to support student success	an assessment to be used by teachers for reporting purposes
a means for students to demonstrate their proficiency in reading and mathematics outcomes	an assessment that requires in-class or at home preparation, or studying of previously taught outcomes in reading and mathematics
a means to collect reliable, standardized data on reading and mathematics achievement in the system as a whole	a measure of school/teacher/ individual student performance

Reporting and Analysis of PRMA Results

The PRMA provides provincial and district level information on reading and mathematics, adding to data already collected from school-based, national, and international assessments.[1]

A detailed and comprehensive report of the PRMA results is released by EECD each spring; one year after the assessment has been administered. The results are also included in the Performance Measurement Framework (PMF) report on the overall performance of the province's public K-12 education system. The PMF is organized around six intended outcomes (Appendix 1). EECD monitors results for each outcome at a provincial level, using the information to ask critical questions and guide future direction. The PRMA results are used in conjunction with other data to assess performance on PMF outcome #4 – "Students meet or exceed expected levels of education".

The PRMA results are released as proficiency levels in reading and mathematics domains. Proficiency level results are also reported by subdomain. Teams of educators from EECD and school districts monitor and analyze the results for each domain to determine the extent to which students in Newfoundland and Labrador are achieving the intended learning outcomes specified in the PRMA framework.

> "In triangulating findings from multiple data sources – that is, by analyzing other data sources, educators are able to identify and solve problems with more accuracy and specificity." ("Data Wise" Chapter 2, Kathryn Parker Boudett)

The PRMA results play an important role in the school development process. In conjunction with other data, such as the School Development Survey results and national/international assessment results, the PRMA trends are used to identify areas of growth and challenge in each domain, to establish priorities, and to guide direction in supporting and improving student learning. During this process, school district staff, administrators and school staff review a range of internal and external data sources to gather evidence on how students are achieving. Critical analysis of the PRMA results is used to guide conversations, in order to enhance the current understanding of assessment, to support the school as a professional learning community and to further develop

[1] NL students participate in one national assessment, the Pan-Canadian Assessment Program (PCAP) and three international assessments, the Programme for International Student Assessment (PISA), Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Study (TIMSS).

instructional and assessment practices within schools. Used in conjunction with other sources of information the PRMA allows EECD, school districts, and schools to be more responsive to student learning.

PRMA Design

The PRMA is developed by teachers with the facilitation of EECD. Assessment items are constructed based on curriculum outcomes from the Newfoundland and Labrador English language arts, Français, and mathematics curriculum guides. The items are used to create different forms of the assessment based on the PRMA Table of Specifications. The Table of Specifications outlines the percentage of items by cognitive level from each domain which must be included in each form of the assessment. (See Table 2)

Table 2: PRMA Table of Specifications*

Domain	Cognitive Level I	Cognitive Level II	Cognitive Level III
Reading Locating and retrieving Understanding and interpreting Reflecting and responding	20%	60%	20%
Mathematics Number Patterns and relations Shape and space Statistics and probability	20%	60%	20%

* Assessment items include both selected and constructed response.

The cognitive demands of the PRMA are defined by the complexity of mental processing required to respond to the items and are divided into three levels: low, moderate, and high. Detailed descriptions of each cognitive level in each domain

are located in Appendices 2 (Reading) and 3 (Mathematics). Examples of reading and mathematics tasks at each cognitive level by grade are located in Appendix 4.

New assessment forms are reviewed by a teacher validation committee to ensure the items assess the intended outcomes and meet the criteria in the table of specifications. Once validation is complete, the items are field tested during the main administration of the PRMA. Field test items are embedded into the main administration assessment but are scored separately and are not included with the results of the main administration. Data from field test items is used to inform the development of future assessments.

The PRMA administration follows a matrix design. Items are divided so that each student is administered a portion of the full assessment. This ensures that a broader range of items can be assessed during each administration period while reducing the number of items that an individual student is required to complete. As a large sample is required for each portion of the assessment, the PRMA is administered to all students at the specified grade levels. Individual assessment results are not provided, as each student writes only a portion of the full assessment and the purpose of the assessment is to guide policy and program development at the system level.

PRMA Administration

The PRMA is a one-hour assessment administered by teachers within a specified two week period in the spring. **The Provincial Reading and Mathematics Assessment Handbook for Schools** provides administrators and teachers with detailed instructions on the administration of the PRMA. This is provided to schools in advance of the administration period and is also available online on the EECD website.

All items created for the PRMA are the property of EECD. Confidentiality is critical to preserving the validity of the assessments. **Copying, scanning, replicating, photographing (including screenshots), taking notes, sharing, discussing, or duplicating any portion of the PRMA is not permitted.**

A summary of the administration guidelines for the PRMA is provided in the following table.

Table 3: PRMA Administration Guidelines for Schools

DO:	DO NOT:
provide students who are absent during the school's main administration the opportunity to complete the assessment at another time during the two-week administration timeframe	provide students who are absent during the school's main administration the opportunity to complete the assessment after the two-week administration period
ensure students complete the assessment independently	permit students to consult with peers and/or teachers during the assessment
ensure the reading passage text is not read to students except where warranted by a student's exceptionality	read the reading passage text to students without an exceptionality or explain, interpret or clarify assessment items for students
ensure students are provided one hour (60 minutes) to write the assessment, with extra time given to students, at the teacher's discretion, to a maximum of two hours in total	provide students an unlimited amount of time to complete the assessment
ensure that accommodations are provided as identified in the **PRMA Exemption and Accommodations Guidelines**	provide student accommodations during the assessment that have not been previously identified

Grades 3, 6 and 9 students participate in the PRMA as per the schedule below.

Table 4: PRMA Assessment Schedule

(a) Reading

Program	Language of administration		
	Grade 3	Grade 6	Grade 9
English Language	English	English	English
Early French Immersion	N/A*	English	English
Late French Immersion	N/A**	N/A**	English
French First Language	French	French	French
Inuktitut and Innu-aimun Immersion**	English	English	English

(b) Mathematics

Program	Language of administration		
	Grade 3	Grade 6	Grade 9
English Language	English	English	English
Early French Immersion	French	French	English
Late French Immersion	English	English	English
French First Language	French	French	French
Inuktitut and Innu-aimun Immersion***	English	English	English

* Early French Immersion students are first introduced to English reading in Grade 3 and will not complete the Grade 3 Reading PRMA.
** Late French Immersion begins in Grade 7.
*** Inuktitut and Innu-aimun Immersion schools have both English and Inuktitut or Innu-aimun as languages of instruction. The results for Inuktitut and Innu-aimun Immersion schools are reported separately from the results for students in the English Language Arts Program.

Exemption and Accommodation Guidelines

EECD recognizes its responsibility to provide exemptions and accommodations for students with identified exceptionalities and students with an English as a Second Language (ESL) designation, as required. The PRMA Exemption and Accommodation Guidelines, outlined below, specify criteria for exemptions and accommodations. Additional information can be found at www.ed.gov.nl.ca/edu/k12.

Exemptions

Exemptions are permitted for students who have:

- an alternate (functional) curriculum;
- alternate courses in language arts or mathematics (below grade level); and/or
- English as a Second Language (ESL) designation, and are currently unable to be evaluated in the regular reporting process (e.g., insufficient evidence for report cards).

Accommodations

Students with identified exceptionalities may be provided accommodations. Accommodations are required:

- to be consistent with the student's current Record of Accommodations/ Student Support Plan and/or Individual Education Plan for reading and/or mathematics;
- to have been effectively used by the student in the past; and/or
- to be supported by the student's comprehensive assessment results and/or diagnosed exceptionality.

Accommodations could include:

- Alternate format materials (required to be applied for and provided by EECD)
    - accessible electronic text (if applicable, the text to voice software to be used must be specified)

    - audio recording of reading domain texts
    - braille
    - large print
- Assistive technology
    - voice to text software/microphone (the digital platform used by the student must be specified in the application form)
    - word processing software
    - text to voice software/headphones for reading back responses to students
    - magnifier
    - calculator as specified in “Calculator Usage” guidelines
- Reading of print materials
- Scribing
    - an approved scribe records only what the student dictates, without prompting
- Transcribing
    - a transcriber reads the response back to the student who then informs the transcriber of any changes to be made

Special Circumstances

- The **Absence Due to Special Circumstances Form** is completed by schools for students who are unable to participate in the PRMA due to special circumstances such as serious illness, or bereavement.
- This form can be found in the **PRMA Handbook for Schools**.

Procedures for Requesting Exemptions and Accommodations

All requests regarding exemptions and accommodations are determined by the student’s program planning team.

- If a student requires an alternate format, schools complete the **Alternate Format Materials Application Form** located in the **PRMA Handbook for Schools**. This form is signed by the principal or school designate. Requests for alternate formats should be submitted by schools to **EECD by February 1st**.
- If a student requires an exemption or accommodation, schools complete the **PRMA Exemption and Accommodation Form** located in the **PRMA Handbook for Schools**. This

form is signed by the principal or school designate. Requests for exemptions and accommodations should be submitted to **EECD by April 1st**.

PRMA Scoring and Standard Setting

The PRMA is composed of selected and constructed response items. All selected response items (multiple-choice) are scored electronically. Constructed response items are scored by teachers, using a scoring guide, at a Provincial Marking Board.

After the scoring is completed, student proficiency levels are determined through a standard-setting process: a set of identified skills and abilities is used to characterize student performance at three proficiency levels.

Reading Domain

Reading is the ability to construct meaning from texts. Text includes communication that uses words, graphics, sounds, images in print, oral, visual, or digital form to present information and ideas. The development of reading skills includes learning to recognize words by sight, identify words through understanding the relationship between speech sounds and their written representations, comprehend and interpret text, and respond to text personally and critically.

A proficient reader integrates information from four 'cueing systems' to identify words and derive meaning from the text as a whole. (Figure 1):

Semantic: using contextual information and readers' general knowledge

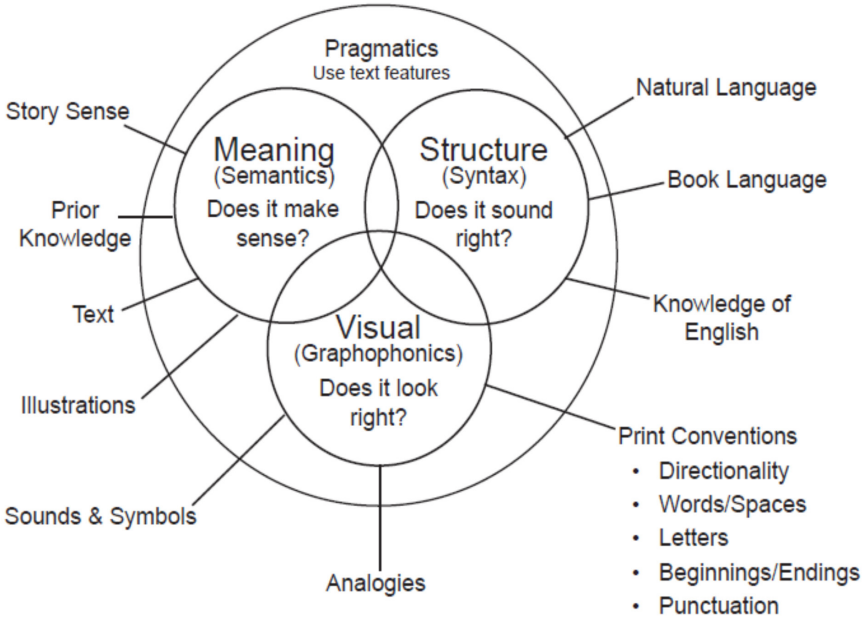
Syntactic: using knowledge of how words are organized into phrases and sentences, including understanding of the function of different parts of speech

Graphophonic: using knowledge of sight words, word meanings, spelling patterns, and how speech sounds are represented in written form

Pragmatics: using knowledge of how text structure is used to construct meaning

The reading domain of the PRMA assesses the reader's use of effective reading strategies and skills. Assessment items are based on the provincial language arts curriculum which outlines the general and specific knowledge, skills and attitudes students are expected to demonstrate as a result of their learning experiences at each grade level.

Figure 1 Four cueing systems



(NL Grade 3 and 6 English Language Arts Curriculum Guide)

As students develop their reading skills they use a variety of strategies to construct meaning. The strategies include analyzing and thinking critically about text by:

- determining importance
- evaluating ideas
- making connections
- making inferences
- making predictions

- questioning before, during, and after reading
- self-monitoring
- sequencing events
- summarizing text
- synthesizing information to create new meaning
- visualizing ideas and concepts

Reading Subdomains

Expectations for each of the subdomains of reading reflect components of the Reading and Viewing strand in the curriculum: locating and retrieving, understanding and interpreting, and reflecting and responding.

Locating and Retrieving

Locating and retrieving refers to the process of constructing meaning based on the information presented directly in the text. Students use a variety of strategies to derive meaning, such as finding the main idea, skimming to retrieve relevant information, sequencing, and using cueing systems. Tasks in this subdomain require a literal understanding of the text.

Reading Skills at the end of grades 3, 6, and 9 include:

- Finding relevant information located in variety of texts;
- Ordering the events in a text (sequencing);
- Reading to achieve literal meaning by identifying the main ideas in a text;
- Using knowledge of vocabulary and cueing systems to make meaning in both familiar and unfamiliar contexts; and
- Using text features to determine content, locate topics and obtain information.

Understanding and Interpreting

Understanding and interpreting refers to determining deeper meaning that is not explicitly stated in a text. Students reflect on the text and draw conclusions to

derive meaning. They may make inferences, anticipate what will happen next, connect elements within a text, summarize the content, and support claims using evidence from the text.

Reading Skills at the end of Grades 3, 6, and 9 include:

- Anticipate what will happen next in a text (make predictions);
- Explain how authors use various techniques (e.g., text features, punctuation) to create meaning and achieve different purposes;
- Interpret information to summarize the text;
- Organize and display information (e.g., Venn diagrams, webs, charts); and
- Rely on the text to inform meaning, draw conclusions and/or connect aspects within the same text.

Use prior knowledge and information from the text to make inferences

Reading Skills added to Grade 6 and 9

- Analyze intentional and unintentional messages (e.g., generalizations, discrimination, stereotypes, prejudices, propaganda, bias);
- Explain how text structures (types, forms and genres) help the reader construct meaning;
- Reading Skills added to Grade 9;
- Explain how conventions help the reader construct meaning;
- Identify and support a message with references to details, events, symbols, patterns and/or text features; and
- Identify examples of literary devices (e.g., imagery, irony) and analyze how they are used to achieve the author's purpose.

Reflecting and Responding

The reflecting and responding domain refers to engaging with texts beyond the literal and inferential meanings through **personal and critical responses**.

When making a **personal response**, students reflect on their own knowledge and experiences to compare, contrast, and react to a text. They may respond to ideas or aspects of a text and provide explanations, examples, opinions and supportive arguments based on personal connections.

When making a **critical response**, students stand apart from the text to take an evaluative stance about the quality and validity of the information (e.g., content, author's perspective). They may consider other texts, social issues, and cultural factors in their analysis.

Reading Skills at the end of Grades 3, 6, and 9 include:

- make connections (e.g., make comparisons among texts, relate personally to a text, understand the text within a larger context);
- express personal opinions and feelings about a variety of texts and support responses using text information, personal experiences and prior knowledge;
- respond personally to texts in order to effect social change (e.g., letter, poster);
- connect ideas in the text to the message, purpose and intended audience;
- compare differing points of view and provide an alternative point of view (e.g., retell a story from a different character's perspective); and
- respond to intentional and unintentional messages (e.g., generalizations, discrimination, stereotypes, prejudices, propaganda).

Reading Skills added to Grade 6 and 9

- take an evaluative stance to comment on the effectiveness of a text; and
- evaluate intentional and unintentional messages (e.g., generalizations, discrimination, stereotypes, prejudices, propaganda).

Reading Skills added to Grade 9

- evaluate intentional and unintentional messages and demonstrate an awareness that personal values influence the creation and interpretation of text;
- respond personally to texts by questioning, evaluating, and extending in order to effect social change; and
- evaluate the portrayal of culture and reality in texts (e.g., how setting and current events have an impact upon the acceptance of text).

Mathematics Domain

The Newfoundland and Labrador mathematics curriculum includes general and specific outcomes that outline the knowledge, skills, and attitudes that students are expected to demonstrate as a result of their learning experiences. The complete list of primary, elementary and intermediate outcomes by strand is found on the provincial government website at www.ed.gov.nl.ca/edu/k12/curriculum/guides/mathematics/index.html.

Mathematics Subdomains

The four subdomains of the mathematics assessment are aligned with strands of the mathematics curriculum: number, patterns and relations, shape and space, and statistics and probability.

Number

The number subdomain assesses a student's general understanding of number sense. Students learn to decompose numbers, solve problems using numbers, understand the relationships among numbers and represent numbers in a variety of ways. Proficiency in computational skills is developed in this subdomain.

Patterns and Relations

The patterns and relations subdomain assesses a student's skills with patterns, variables, and algebraic expressions.

Students are expected to learn to recognize, extend, create, and use patterns that exist in all strands of mathematics. Patterns allow students to make predictions and justify their reasoning when solving problems. Working with patterns in the early grades helps students develop algebraic thinking, which is foundational for working with more abstract mathematics.

Students are taught to look for connections among numbers, sets, shapes, objects, and concepts. The search for possible relationships involves collecting and analyzing data, and describing relationships visually, symbolically, orally or in written form.

Shape and Space

Spatial sense, which includes aspects of geometry and measurement, offers a way for students to interpret and reflect on the physical environment. It involves visualization, mental imagery and spatial reasoning, and is developed through a variety of experiences and interactions. The development of spatial sense enables students to solve problems, to interpret, quantify and to reflect on the representations of two dimensional shapes and three dimensional objects.

Statistics and Probability

To investigate their world and solve problems, students are asked to collect, display and analyze data. Students learn how to interpret data and assess its reliability. In developing an understanding of probability, students learn to address and describe the predictably of the occurrence of an outcome.

Using Mathematics Manipulatives in the PRMA

Physical manipulatives may be used by students for the PRMA. The use of manipulative materials has been shown to help students deepen their understanding of key mathematical concepts (NCSM 2013 & NCTM 2014). Materials such as counters, interlocking cubes, base ten blocks, and geometric solids are effective tools in the development and consolidation of student learning, including problem solving skills.

Using Calculators in the PRMA

Calculators are not permitted for Grades 3 and 6 students during the PRMA. Use of a calculator is permitted for the Grade 9 PRMA excluding components which assess the ability to perform calculations. **Graphing calculators and cell phones are not permitted**.

> "Young children love to think mathematically.They become exhilarated by their own ideas and the ideas of others. To develop the whole child, we must develop the mathematical child…." Learning and Teaching Early Math: The Learning Trajectories Approach, Clements and Sarama, 2009

Appendix 1: Performance Measurement Framework

The Department of Education and Early Childhood Development's Performance Measurement Framework (PMF) is a consistent, systematic approach for reporting on the performance of the K-12 system. It describes six outcomes which the public K-12 education system strives to achieve. Multiple indicators are used to assess performance on each outcome. Information from the framework will assist stakeholders in making informed decisions for the enhancement of student learning.

Outcomes:

Outcome 1 – Children begin school with a strong foundation for learning and development.

Early learners benefit from learning initiatives targeted to children from birth to age six, parents and caregivers. These learning initiatives prepare them for success in school and beyond.

Outcome 2 – Students experience a safe, caring, and inclusive school environment.

A safe, caring, and inclusive environment is a necessary condition for learning. The school environment is in compliance with applicable safety codes and legislation. It is orderly and free from bullying, harassment, intimidation and other forms of violence. The environment is a place where students build healthy relationships, create strong and supportive social networks and develop emotional well-being, self-awareness, and self-esteem. It is free from discrimination; diversity is celebrated and respect is promoted. All members of the school community exhibit behaviours that promote health and personal well-being.

Outcome 3 – The education system is responsive to students' strengths and needs.

Students have the opportunity to learn in a manner suited to their strengths, needs and unique ways of learning through modifications to educational materials, instructional or assessment methods, learning outcomes, and/or the physical environment.

Outcome 4 – Students meet or exceed expected levels of achievement.

Students are able to draw upon a set of attitudes, knowledge, and skills, and apply them to their learning, work, and personal lives.

Outcome 5 – Students complete secondary education.

Students receive a High School Graduation Diploma or a School Leaving Certificate.

Outcome 6 – Students become life-long learners, and ethical, productive adults.

Students realize their potential to become socially and economically engaged with their communities in a positive manner; they have the capacity and confidence to adapt, achieve and excel, regardless of the challenges they face.

Appendix 2: Cognitive Levels for Reading Items

The three cognitive levels for reading questions in the PRMA are adapted from national and international assessment frameworks that are based on Bloom's Taxonomy (Bloom, Revised 2001). They are defined by the complexity of mental processing that must occur to understand and engage with texts.

Cognitive Level I - Low Complexity

The focus is on identifying facts, terms, basic concepts, main ideas and answers from the text selection (Locating and Retrieving). Items may involve tasks that require students to:

- identify main ideas in a text;
- order events in sequence;
- retrieve information (e.g., definitions, terminology); and
- use text features (e.g., headings, bold words, illustrations, tables) to locate topics and obtain information.

Cognitive Level II - Moderate Complexity

The focus is on applying acquired knowledge and conceptual understanding to develop a deeper meaning of the text selection (Understanding and Interpreting). Items may involve tasks that require students to:

- analyze intentional and unintentional messages in a text;
- apply prior knowledge to make inferences and draw conclusions;
- connect ideas within a text;
- explain how authors use various techniques to achieve different purposes;
- organize and share information;
- predict what will happen next in a text; and
- summarize the main ideas in a text.

Cognitive Level III - High Complexity

The focus is on making personal connections and developing an evaluative perspective about the quality or value of the text (Reflecting and Responding). Items may involve tasks that require students to:

- compare differing points of view and provide an alternative point of view;
- evaluate the effectiveness of a text;
- express personal opinions and feelings about a text.

Appendix 3: Cognitive Levels for Mathematics Items

The three cognitive levels for mathematics questions in the PRMA are adapted from national and international assessment frameworks based on Bloom's Taxonomy (Bloom, 2001). They are defined by the complexity of mental processing that must occur to answer a question, perform a task, or generate a solution.

Cognitive Level I - Low Complexity

The focus is on the facts, concepts, and procedures that students need to know in order to answer questions or solve problems. Items may involve tasks that require students to:

- carry out basic computations (i.e., addition, subtraction, multiplication, division);
- choose appropriate units of measure;
- classify numbers, expressions, quantities and shapes by common properties;
- draw or measure simple geometric figures;
- identify properties;
- recall information (e.g., facts, definitions, terminology);
- recognize equivalent representations (e.g., familiar fractions, decimals, percents, orientations of simple geometric figures);
- recognize numbers, expressions, quantities and shapes; and
- retrieve information from a graph, table, or text.

Cognitive Level II – Moderate Complexity

The focus is on the application of knowledge and conceptual understandings to answer questions or solve problems. Items may involve tasks that require students to:

- apply strategies and operations (e.g., solve problems involving familiar mathematical concepts and procedures);
- apply properties;
- compare geometric figures or statements;
- extend a pattern;
- formulate a problem given data and conditions;

- identify equations, inequalities, geometric figures or diagrams that model situations;
- organize, compare and/or display data in tables or graphs; select, use and interpret different mathematical representations depending on the situation;
- represent a situation mathematically in more than one way; and
- retrieve information from a graph, table or text and use the information to solve a problem.

Cognitive Level III - High Complexity

The focus at this level goes beyond the solution of problems to encompass unfamiliar situations, complex contexts, and multistep problems. Such items involve tasks that require students to:

- analyze properties;
- analyze similarities and differences among procedures and concepts;
- determine, describe or use relationships among numbers, expressions, quantities and shapes (e.g., solve unfamiliar problems);
- describe how different mathematical representations can be used for different purposes;
- evaluate alternative problem solving strategies and solutions;
- formulate an original problem given a situation;
- interpret data from a series of data displays and use the information to solve a problem.
- justify a solution to a problem with multiple solutions;
- link different elements of knowledge, related representations and procedures to solve problems; and
- perform procedures having multiple steps and multiple decision points.

Appendix 4: Sample Assessment Items

Grade 3 Reading

We Are One World

Pierre lives in Canada,
Marla lives in Spain.
But both like to ride their bikes
Along the shady lane.

Liv lives in Norway,
Ramon is in Peru.
But both laugh with the giraffe
When visiting the zoo.

Anwar is Egyptian,
Kim is Japanese.
But both run beneath the sun
And fly kites in the breeze.

Jack is from the U.S.A.,
Karintha is from Chad.
But both can write a poem at night
Upon a writing pad.

Children live all over,
The world's a giant ball.
But far and near, it's very clear
We're one world after all.

—Meish Goldish

1. In the poem, where do Anwar and Kim fly a kite? (Cognitive Level I)
   A. Canada and Norway
   B. Egypt and Japan
   C. Spain and Peru
   D. U.S.A. and Chad

2. Why is the word “both” repeated throughout the poem? (Cognitive Level II)
   A. to show people all live in the same country
   B. to show people are alike in many ways
   C. to show people do different activities
   D. to show people like different places

3. What is the message of this poem? Explain your answer. (Cognitive Level III)

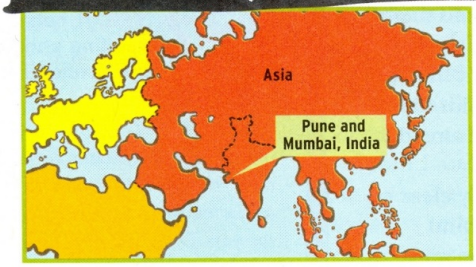
Grade 6 Reading

WORLD WATCH

Cool Schools

There are all kinds of cool schools across the globe — from green ones to mobile ones to virtual ones. So take a trip with OWL and get schooled around the world.

Door Step School



This school on wheels does exactly what the name says: it brings a classroom to the "doorstep" of underprivileged kids in India who don't have access to regular school. India is home to almost half a billion kids and has more street kids than any other country. Many kids have to work instead of going to school, and some have to take care of their siblings while their parents work. So the **Door Step School** provides a possible and convenient way to learn.

The bus, which has space for up to 25 children, is a classroom equipped with books, art supplies, audio-visual equipment, and chalkboards. Every day the bus travels the same route and stops at the same spots so kids will always know when to expect it. The Door Step School serves thousands of children in Mumbai and Pune.

Besides running the School on Wheels program, the Door Step School helps kids gain admission to their local school to get a formal education. The program also offers kids a daily ride to and from their local school.

COOL Schools

Dr. David Suzuki Public School

The **Dr. David Suzuki Public School** isn't just eco-conscious, it's the most energy-efficient school in Canada. Building features include solar tube lighting, geothermal heat production, and a composting program.

The building was constructed in a way that allows students to see how it functions — from its rainwater-collection system to its green energy sources. Transparent walls let students see the geothermal heating and cooling systems in action. The roof is partly covered with native plants to help insulate the building and also provide a habitat for birds and insects.

The curriculum includes regular school subjects such as math and language, but students also learn how to take care of the Earth properly and are encouraged to practise their eco-knowledge everywhere they go.

At the school's grand opening, David Suzuki told the students: "All of you, in going through this school, you're going to come out a different kind of person. You are going to cause change that will ripple out far beyond the school."

Rainforest School

Deep in the Brazilian rainforest is the isolated village of Xixuaú. The village is so remote that it takes five days to reach the nearest city by canoe. In 2002, the villagers started working with a group called the Solar Electric Light Fund (SELF). SELF helped bring solar panels, computers, a satellite system, and the internet to the area. A new school was built, and the internet allowed the students to access Brazil's online learning programs.

Today, the students in Xixuaú connect with students around the world, teaching them about protecting the Amazon rainforest and the importance of conservation. Families no longer have to move so their kids can finish school. Instead, they can stay in the village and show the rest of the world the values of the rainforest.

1. What does the Door Step School provide? (Cognitive Level I)
   A. access to nutrition and health
   B. convenient way to learn
   C. education through the internet
   D. spirit for nature

2. How will Dr. David Suzuki Public School change people? (Cognitive Level II)
   A. further their technological skills
   B. lead them to a career in Science
   C. make students more environmentally conscious
   D. teach them to conserve water

3. Of the schools discussed in this text, which would you MOST like to attend? Explain your answer. (Cognitive Level III)

Grade 9 Reading

NON-FICTION REPORT

What Will They Think of Next?

From technology that harnesses the power of poop to computers that allow cars to interact, modern science is breaking ground in amazing ways.

Tired of a Winter Wonderland ...

Does the thought of snowdrifts, slush, and blizzards make you cringe? Apparently you're not the only one. The mayor of Moscow, Yury Luzkhov, recently revealed plans to alter the snowy winter weather the Russian capital is known for. The Russian Air Force will be enlisted to spray clouds approaching Moscow with a fine chemical mist made up of dry ice, cement particles, or silver iodide. This mixture will increase the density of the water droplets in the clouds and cause precipitation. The forced precipitation will then fall on Moscow's outlying areas instead of on the city itself. This method, called cloud seeding, has been around for a while. Luzkhov, however, is the first to propose using the technique to save money on snow removal!

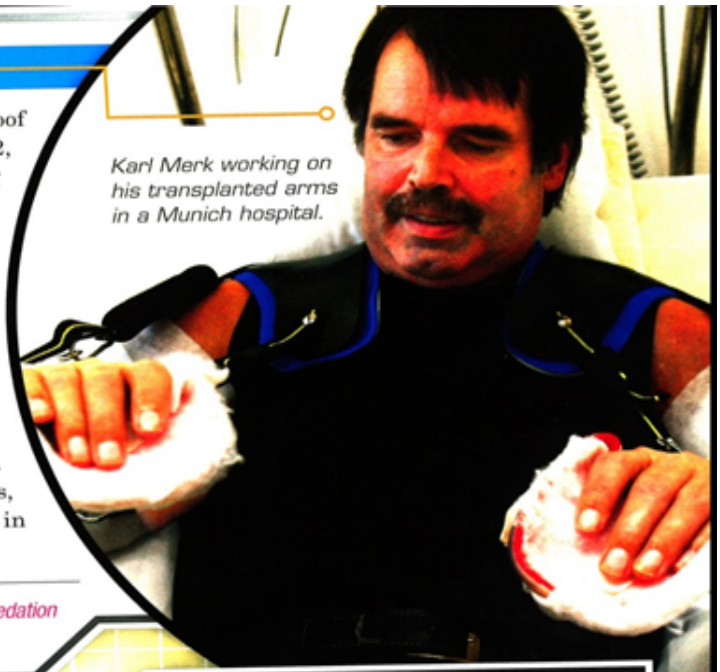
density: *concentration; degree of compactness*

Arm Transplants

German farmer Karl Merk is living proof of advances in modern medicine. In 2002, Merk lost both his arms in a farming accident. In July 2008, he underwent the first complete double-arm transplant, a 15-hour procedure. A team of 40 doctors, nurses, and anesthesiologists performed the surgery, attaching new arms just below Merk's shoulders.

The doctors predicted that it would be two years before his arm nerves grew long enough to allow movement, but Merk beat that diagnosis by 12 months. He was able to lift and wave his new arms, and reported continuing improvement in his fingers, just a year after the surgery.

anesthesiologists: *doctors trained to administer sedation and pain-blocking medication to patients*



Karl Merk working on his transplanted arms in a Munich hospital.

Poop Power

Could poop power help reduce our reliance on oil and gas? Hamilton, Ontario, is betting that it can. According to *The Hamilton Spectator*, the city is behind a $30 million project to produce biofuel from human waste. The fuel would be used to power city vehicles. "We can solve environmental problems and make money at the same time," says Jim Harnum, Hamilton's senior director of waste and wastewater.

Human waste contains lots of methane gas, a valuable resource that is usually wasted. The project's first step involves using bacteria to harvest this gas. Secondly, a new technology will be used to pry open the dead bacteria after they've broken down the solid waste. Opening these bacteria, which store energy, will vastly increase the amount of energy recovered by the process. Once all the gas is collected, it will pass through a purification system before being ready for use in the city's fleet.

biofuel: *energy derived from renewable sources*

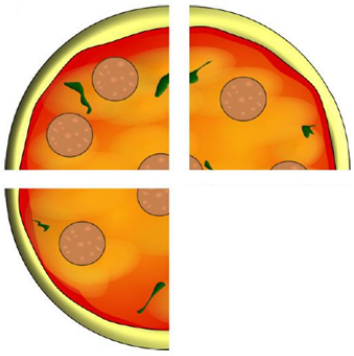
1. What is another name for the method of “forced precipitation” described in the article? (Cognitive Level I)
   A. chemical misting
   B. cloud seeding
   C. iodide spraying
   D. water purifying

2. What can the reader infer about the medical procedure in the section called “Arm Transplants”? (Cognitive Level II)
   A. Complete recovery can be guaranteed.
   B. Recovery times are difficult to predict.
   C. Surgeries must be performed immediately.
   D. This procedure is routinely performed.

3. Choose a visual that helped you better understand one of the technologies in the article, “What Will They Think of Next?” Explain how it was effective. (Cognitive Level III)

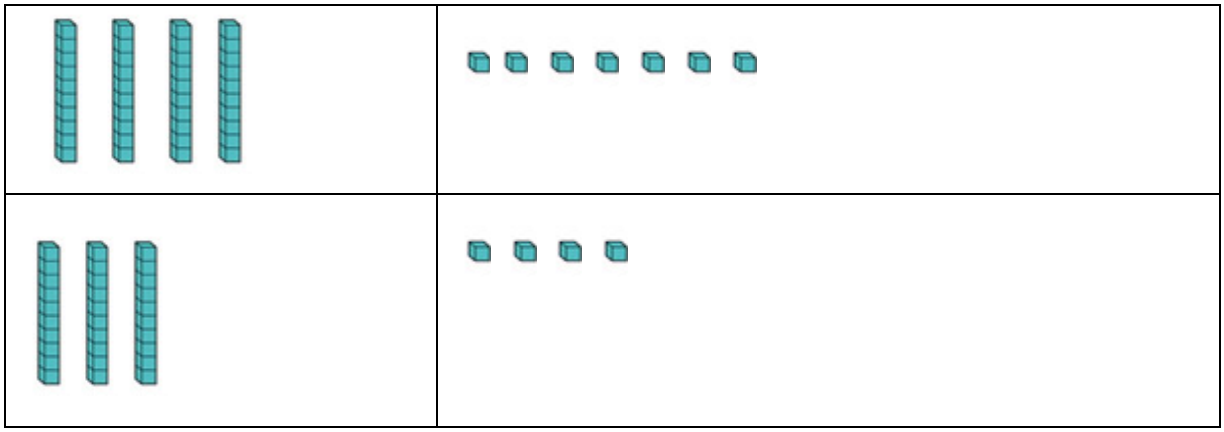
Grade 3 Mathematics

1. What fraction of the pizza remains? (Cognitive Level I)



A. $\frac{1}{4}$ B. $\frac{1}{3}$ C. $\frac{1}{2}$ D. $\frac{3}{4}$

2. What is the sum? (Cognitive Level II)



A. 18

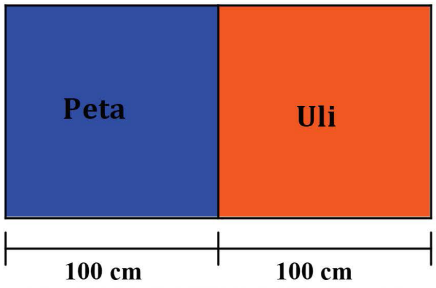
B. 71

C. 81

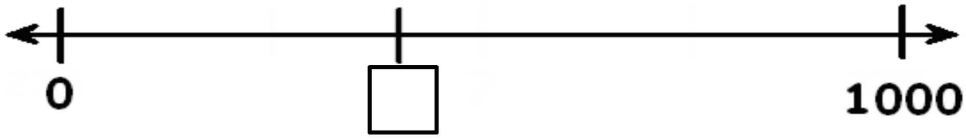
D. 84

3. Peta and Uli went on a picnic. They put their blankets together to set up their lunch. Each blanket is a square measuring 100 cm across. What is the perimeter of the two blankets put together without overlapping? (Cognitive Level III)

A. 200 cm
B. 400 cm
C. 600 cm
D. 800 cm



4. What number do you think should be placed in the ☐? (Cognitive Level II)



Explain why you think this number should be placed in that position.

Grade 6 Mathematics

1. Add 0.463 + 8.04? (Cognitive Level I)

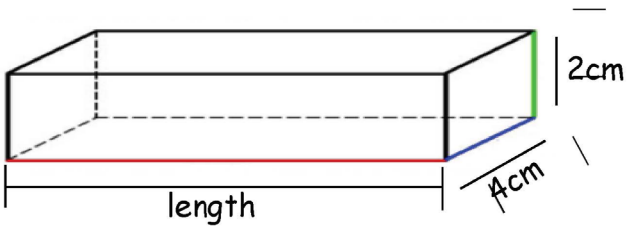
   A. 7.577

   B. 8.467

   C. 8.503

   D. 8.863

2. This rectangular prism has a volume of 48cm^3. What is the length? (Cognitive Level II)



   A. 6 cm

   B. 8 cm

   C. 12 cm

   D. 24 cm

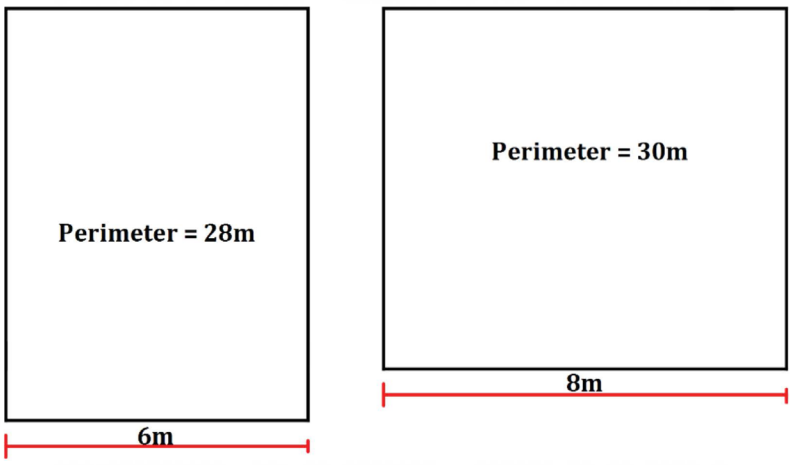
3. Eva and Gabe are each building a rectangular fence for a garden. Eva's garden has a perimeter of 28 m with one side length of 6m. Gabe's garden has a perimeter of 30m and one side length of 8m. What is the area of the two gardens joined together? (Cognitive Level III)

   A. 44 m²

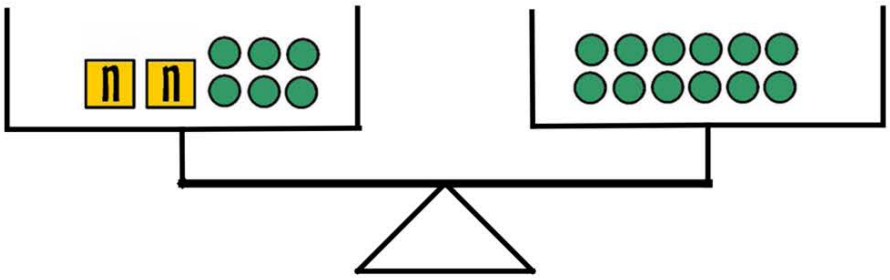
   B. 58 m²

   C. 62 m²

   D. 104 m²



4. The model below represents the equation 2n + 6 = 12.



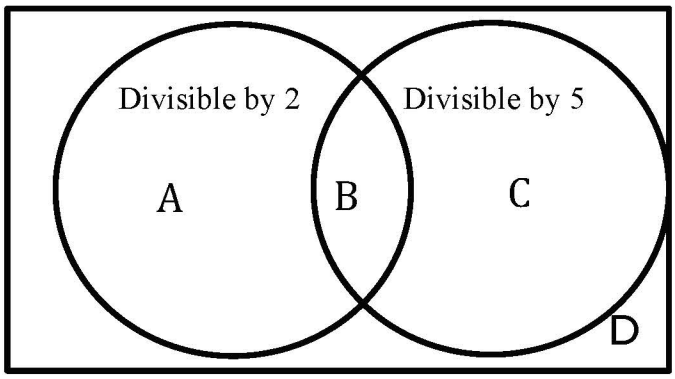
A. Write an equation that is equivalent to the one represented. (Cognitive Level II)

B. How is your equation equivalent to 2n + 6 = 12. (Cognitive Level II)

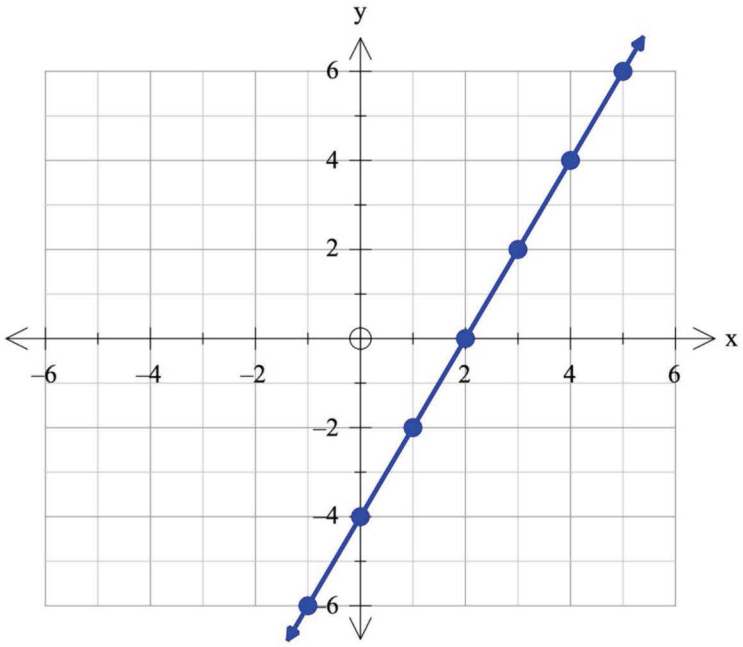
Grade 9 Mathematics

1. Where would you place the number 232 in the Venn diagram? (Cognitive Level I)

A. A
B. B
C. C
D. D

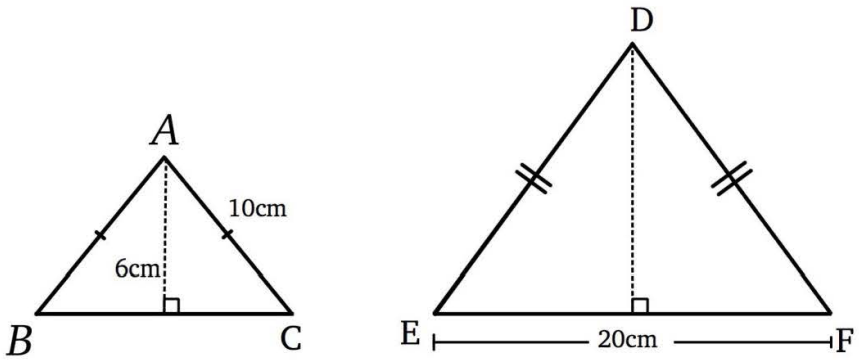


2. Which equation is represented by the graph? (Cognitive Level II)



A. y = -2x - 4
B. y = 2x + 4
C. y = 2x + 4
D. y = 2x – 4

3. If, $\Delta ABC \sim \Delta DEF$ then what is the area of ΔDEF, in cm^2? (Cognitive Level III)



A. 51

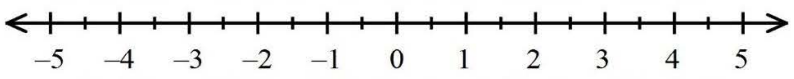
B. 75

C. 120

D. 150

4. Solve the inequality and graph the solution: (Cognitive Level II)

$$-\frac{3}{2}x + 2 \geq \frac{1}{2}$$



References

Bloom, B. S. (2001). A taxonomy for learning, teaching, and assessing: a revision of Bloom's Taxonomy of educational objectives. Longman.

Boudett, K. P., City, E. A., & Murnane, R. J. (2015). Data wise: A step-by-step guide to using assessment results to improve teaching and learning. Harvard Education Press.

Collins, A., Philpott, D., Fushell, M., & Wakeham, M. (2017) Newfoundland and Labrador. The Premier's Task Force on Improving Educational Outcomes: Now is the Time.

Driscoll, M. (1981) Research within reach: Elementary school mathematics. Reston, VA: National Council of Teachers of Mathematics

Fullan, M. (2011) Choosing the Wrong Drivers for Whole System Reform. Centre for Strategic Education

Newfoundland and Labrador. Department of Education and Early Childhood Development (2014). English Language Arts Grade 6: Curriculum Guide.

Newfoundland and Labrador. Department of Education and Early Childhood Education. (2015). English Language Arts Grade 3: Curriculum Guide.

Newfoundland and Labrador. Department of Education and Early Childhood Education (2017). English Language Arts Grade 9: Curriculum Guide.

Newfoundland and Labrador. Department of Education and Early Childhood Education (2014). Mathematics Grade 9: Curriculum Guide.

Newfoundland and Labrador. Department of Education and Early Childhood Education (2015). Mathematics Grade 6: Curriculum Guide.

Newfoundland and Labrador. Department of Education and Early Childhood Education (2017). Mathematics Grade 3: Curriculum Guide.

Landrigan, C., & Mulligan, T. (2013). Assessment in Perspective: Focusing on the Reader Behind the Numbers. Stenhouse Publishers.

nctm.org. (2018).Index - National Council of Teachers of Mathematics. [online] Available at: https://www.nctm.org/ [Accessed 3 Dec. 2018].

OECD (2016), PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematic and Financial Literacy, PISA, OECD Publishing, Paris, https://doi.org/10.1787/9789264255425-en.

The National Council of Supervisors of Mathematics (2013). Improving Student Achievement. Series No. 11/Spring 2013 No. 11.

Stiggins, Richard (2017).The Perfect Assessment System. Association for Supervision and Curriculum Development.

Notes

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Labrador