

# Provincial Assessment Results 2023-24

GRADES 5 & 7 MATHEMATICS

## BACKGROUND

Since 2021-22, provincial assessments have been administered using an online platform. Students have unlimited access to an online assessment practice to familiarize themselves with the platform prior to the assessment period.

In 2021-22 a mode study was conducted to identify any impact or bias resulting from migration to the online platform. Traditional paper versions of the tests were administered to ten percent of students, while the rest completed the tests online. Results of statistical analyses indicated:

- Online versions were statistically equivalent to the paper versions.
- Test reliability was comparable to the previous year.
- Test items performed without bias for students in all programs of study and for students with accommodations.

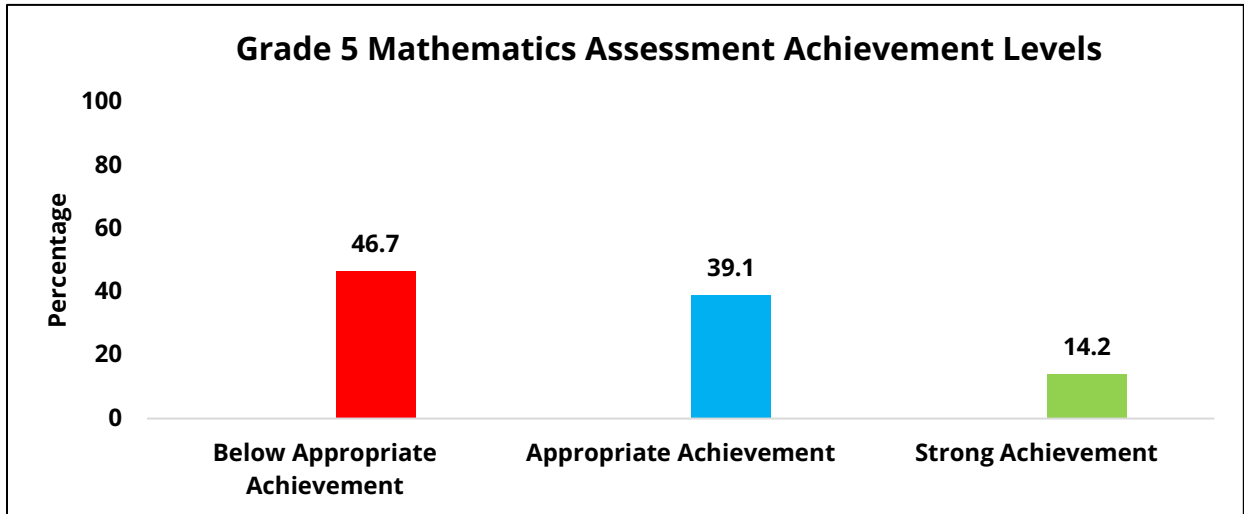
Newly developed Grade 5 and 7 mathematics assessments were administered for the second time in the spring of 2024. Each assessment pertains to knowledge and skills in four strands (*Number, Patterns and Relations, Shape and Space, and Statistics and Probability*).

In keeping with the Department's assessment protocols, test items were developed by groups of New Brunswick educators, including Grade 5 and Grade 7 classroom teachers and experienced subject area experts.

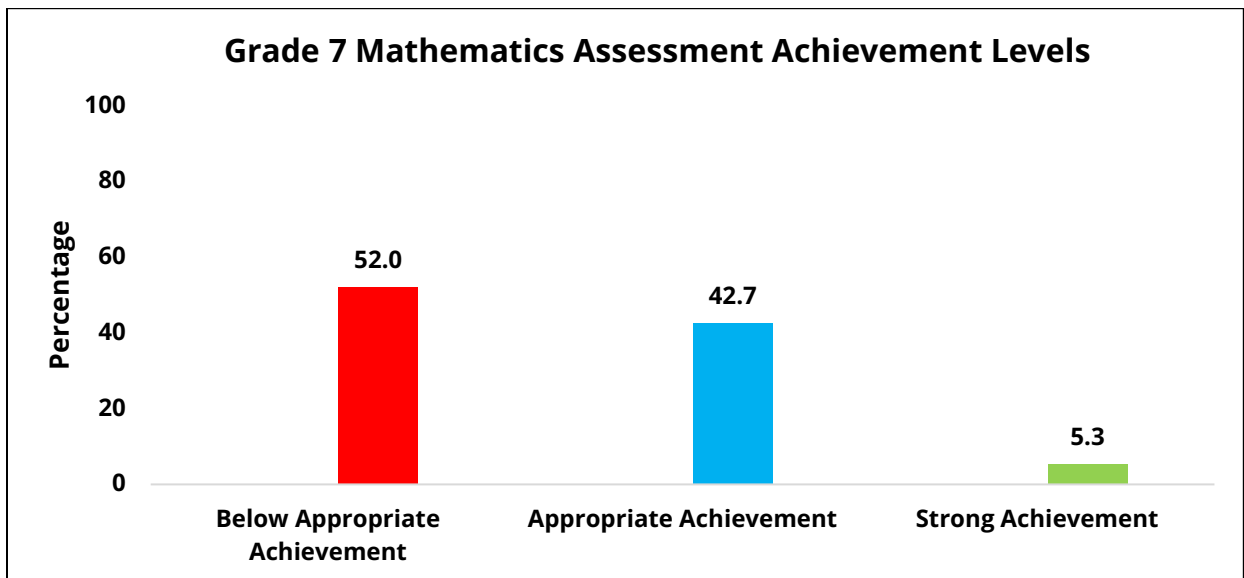
All Mathematics assessments are fully bilingual, and students may complete the assessment in the language of their choice. Warranted accommodations are provided to include as many students as possible in the provincial assessment program. Universal accommodations included coloured background, text-to-speech, text magnification, and toggling between English and French. In certain circumstances, it is necessary and fitting for students to be exempted from participation. This is the case when the testing format is not suitable for a student to demonstrate their learning, even with accommodations. For further information, please consult the [Provincial Assessment Program: Protocols for Accommodations and Exemptions](#).

## ACHIEVEMENT RESULTS

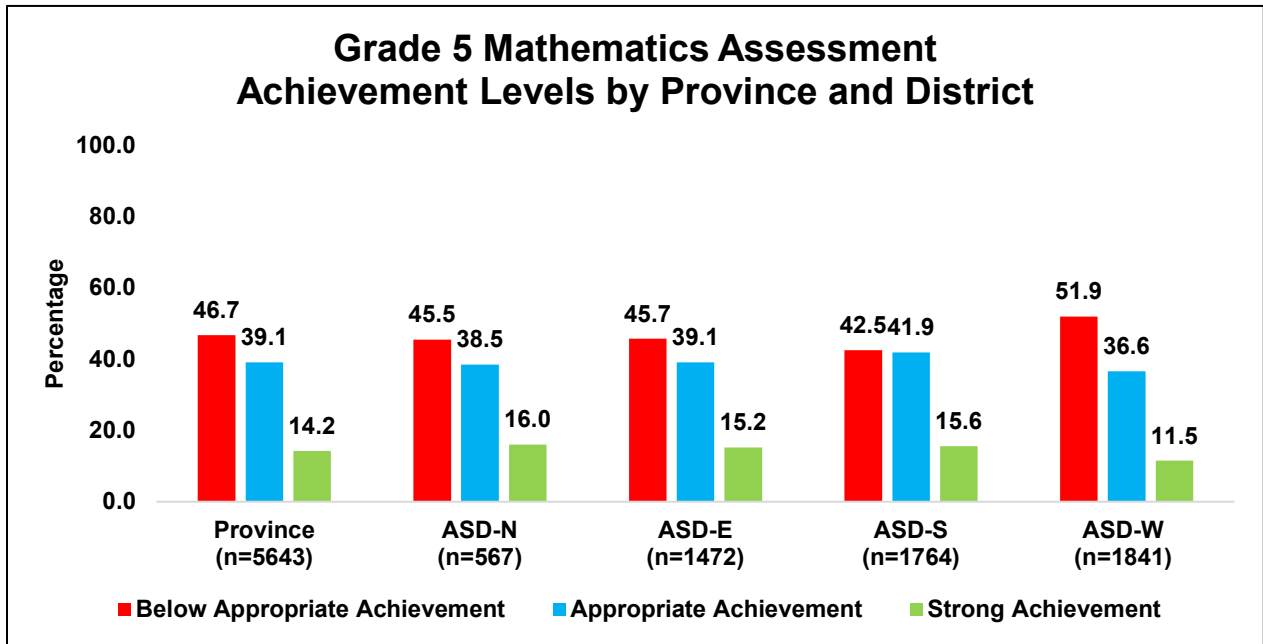
Of 5643 Grade 5 students, 53.3% were successful (14.2% attained *Strong Achievement* and 39.1% attained *Appropriate Achievement*). The 46.7% of students in the *Below Appropriate Achievement* group includes exempted students (3.9%) but excludes students who are absent during the assessment administration period (94).



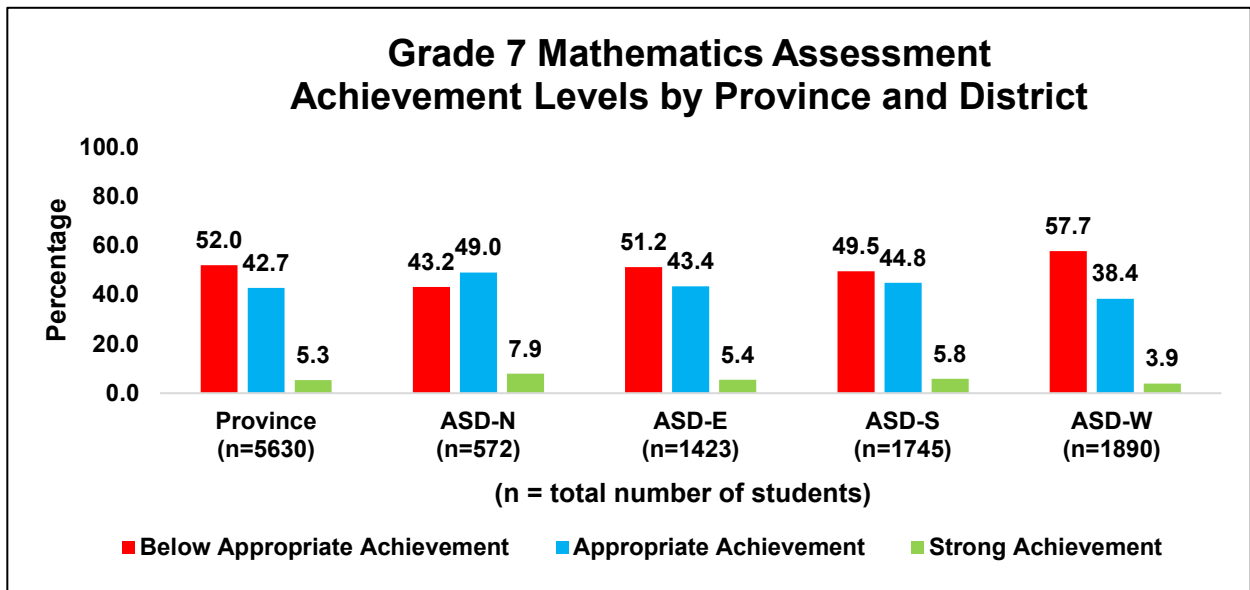
Of 5630 Grade 7 students, 48% were successful (5.3% attained *Strong Achievement* and 42.7% attained *Appropriate Achievement*). The 52% of the students in the *Below Appropriate Achievement* group includes exempted students (3.5%) but excludes students who are absent during the assessment administration period (210).



The graph below indicates the Grade 5 mathematics achievement levels for the province and for each school district. District success rates are as follows: ASD-N = 54.4%; ASD-E = 54.3%; ASD-S = 57.5%; ASD-W = 48.1%.



The graph below indicates the Grade 7 mathematics achievement levels for the province and for each school district. District success rates are as follows: ASD-N = 56.8%; ASD-E = 48.8%; ASD-S = 50.5%; ASD-W = 42.3%.



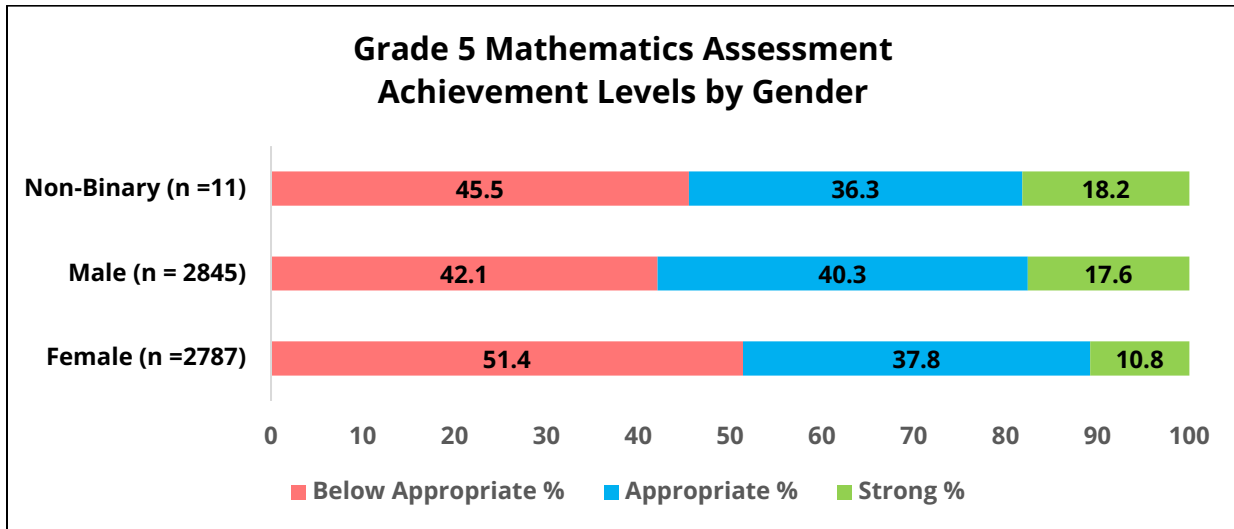
Exemption rates for the *Grade 5 Mathematics Assessment* are displayed in the table below.

<b>Grade 5 Mathematics Assessment Exemption Rates</b>				
<b>District</b>	<b>Number of Grade 5 Students</b>	<b>Number of Students Exempt</b>	<b>Percent Exempt</b>	<b>Success Rate Excluding Exemptions</b>
<b>Province</b>	5643	219	3.9	55.5
<b>ASD-North</b>	567	17	3.0	56.2
<b>ASD-East</b>	1472	61	4.1	56.7
<b>ASD-South</b>	1763	75	4.3	60.1
<b>ASD West</b>	1841	66	3.6	49.9

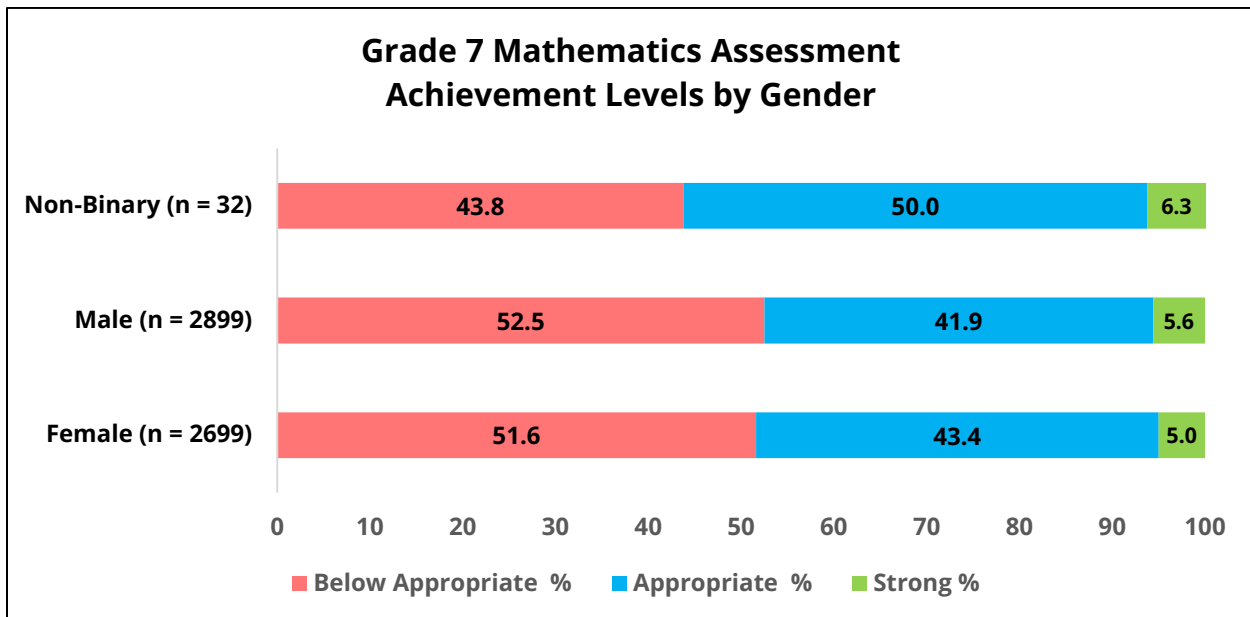
Exemption rates for the *Grade 7 Mathematics Assessment* are displayed in the table below.

<b>Grade 7 Mathematics Assessment Exemption Rates</b>				
<b>District</b>	<b>Number of Grade 7 Students</b>	<b>Number of Students Exempt</b>	<b>Percent Exempt</b>	<b>Success Rate Excluding Exemptions</b>
<b>Province</b>	5630	199	3.5	49.7
<b>ASD-North</b>	572	11	1.9	57.9
<b>ASD-East</b>	1423	47	3.3	50.4
<b>ASD-South</b>	1745	65	3.7	52.5
<b>ASD West</b>	1890	76	4.0	44.1

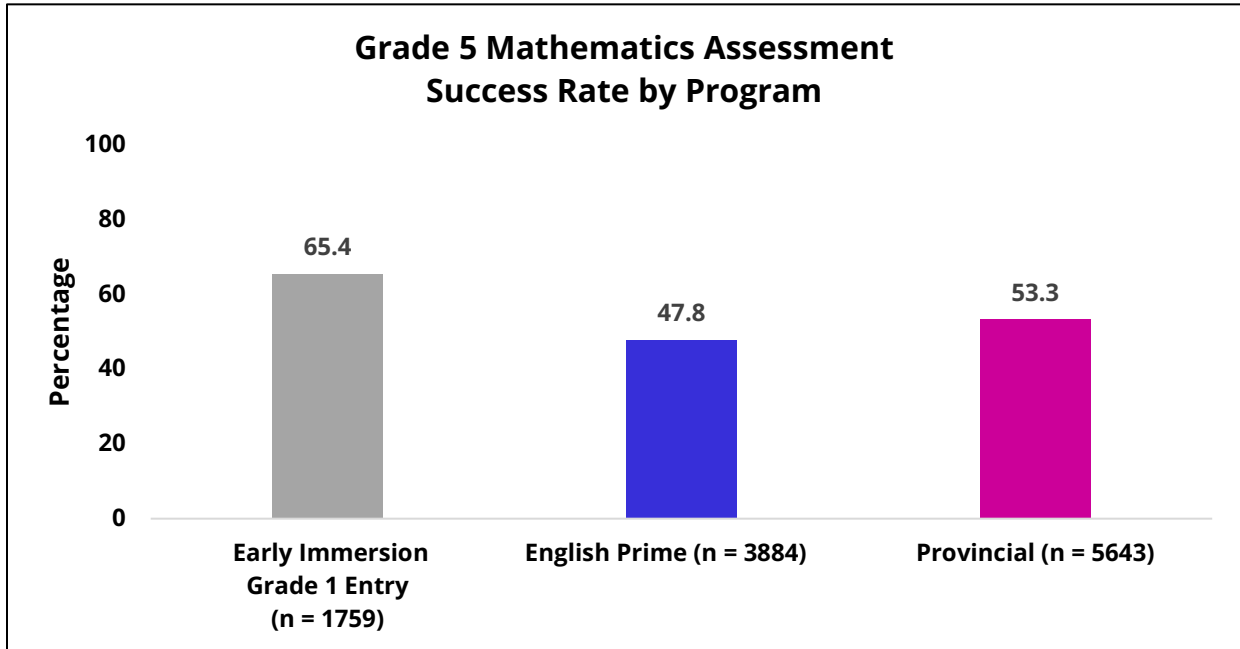
The following graphs illustrate achievement levels by gender. Gender designations for this analysis were retrieved from administrative data contained in the provincial Student Information System. Combining *Appropriate* and *Strong* achievement levels, the Grade 5 success rate was 48.6% for female students, 57.9% for male, and 54.5% for non-binary students. Although there are few students in the latter group (11), results are included to provide a complete provincial picture and a baseline for anticipated increases in the number of students in this group over time.



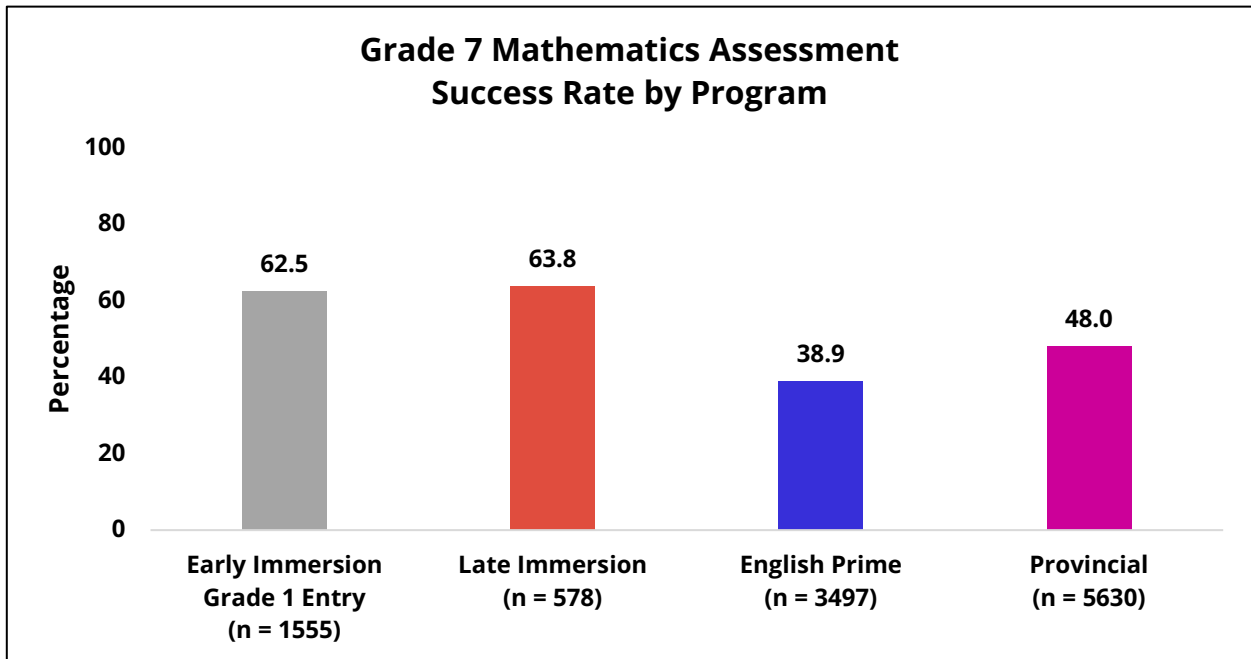
Combining *Appropriate* and *Strong* achievement levels, the Grade 7 success rate was 48.4% for female students, 47.5% for male, and 56.3% for non-binary students. Although there are few students in the latter group (32), results are included to provide a complete provincial picture and a baseline for anticipated increases in the number of students in this group over time.



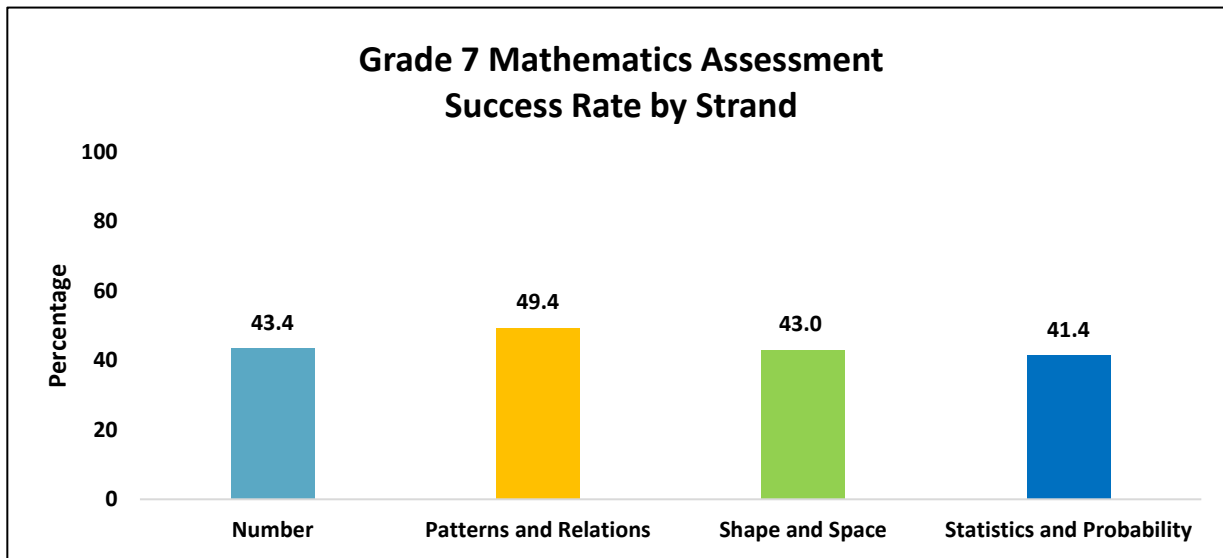
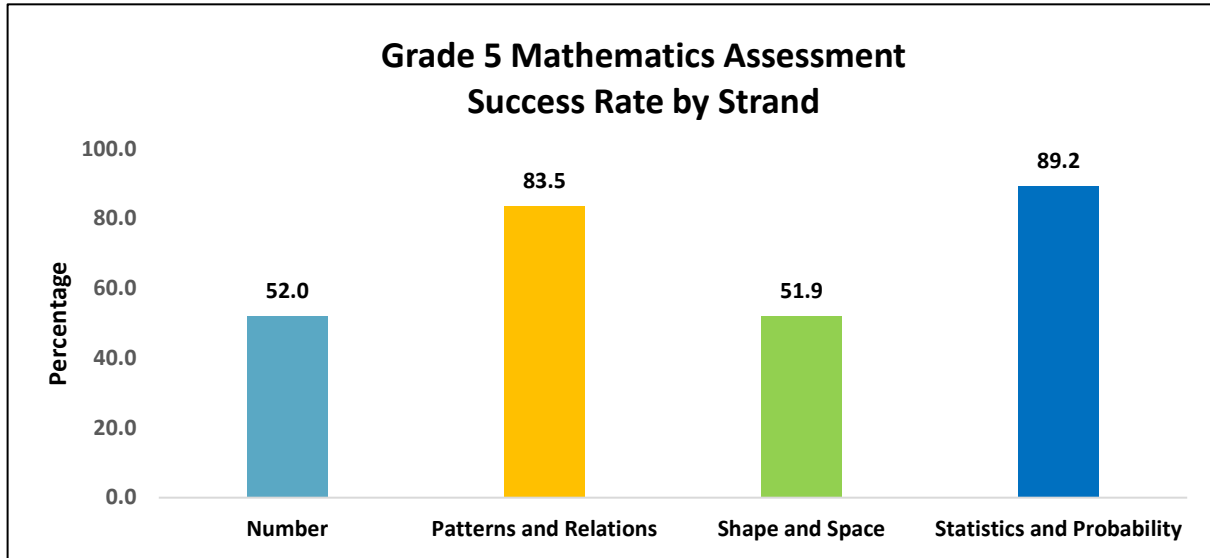
The graph below indicates Grade 5 student success rates by language program.



The graph below indicates Grade 7 student success rates by language program.



The assessment includes four curriculum strands: *Number*, *Patterns and Relations*, *Shape and Space*, and *Statistics and Probability*.



## DESCRIPTION OF THE *APPROPRIATE ACHIEVEMENT* LEVEL FOR THE MATHEMATICS PRIORITY OUTCOMES, END OF GRADE 5

### Number

- Represent and describe place value to 1 000 000.
- Use estimation strategies including front-end rounding, compensation, and compatible numbers, in problem-solving contexts.
- Apply mental mathematics strategies and number properties to determine answers for basic multiplication facts to 81 and related division facts.
- Apply mental mathematics strategies for multiplication (up to 2-digit by 2-digit), with and without concrete materials, such as: annexing then adding zero, halving and doubling, and using the distributive property.
- Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit) and interpret remainders to solve problems.
- Demonstrate an understanding of equivalent fractions with like and unlike denominators.
- Describe and represent decimals (tenths & hundredths) concretely, pictorially, and symbolically.
- Relate decimals to fractions (tenths & hundredths).
- Demonstrate an understanding of addition and subtraction of decimals (tenths & hundredths).

### Patterns and Relations

#### Algebra

- Solve problems involving single-variable, one-step equations with whole number coefficients and whole number solutions.

### Shape and Space

#### Measurement

- Demonstrate an understanding of measuring length (mm and km).
- Demonstrate an understanding of capacity by describing the relationship between mL and L.

### Statistics and Probability

#### Data Analysis

- Construct and interpret bar graphs involving many to one correspondence to draw conclusions.



## DESCRIPTION OF THE *APPROPRIATE ACHIEVEMENT LEVEL FOR THE MATHEMATICS PRIORITY OUTCOMES, END OF GRADE 7*

### Number

- Demonstrate an understanding of the addition, subtraction, multiplication, and division of decimals (for more than 1-digit divisors or 2-digit multipliers, the use of technology is expected) to solve problems.
- Demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially, and symbolically (limited to positive sums and differences).
- Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially, and symbolically.

### Patterns and Relations

#### Algebra

- Model and solve problems that can be represented by one-step linear equations of the form  $x + a = b$ , concretely, pictorially, and symbolically, where  $a$  and  $b$  are integers.
- Model and solve problems that can be represented by linear equations of the form:  $ax + b = c$ ,  $ax = b$ ,  $x/a = b$ ,  $a \neq 0$ ; concretely, pictorially, and symbolically, where  $a$ ,  $b$  and  $c$  are whole numbers.

### Shape and Space

#### Measurement

- Develop and apply a formula for determining the perimeter of polygons, area of rectangles and volume of right rectangular prisms.
- Demonstrate an understanding of angles by: identifying examples of angles in the environment; classifying angles according to their measure; estimating the measures of angles using  $45^\circ$ ,  $90^\circ$ ,  $180^\circ$  as reference angles; determine angles measures in degrees; drawing and labelling angles when the measure is specified.

### Statistics and Probability

#### Data Analysis

- Demonstrate an understanding of central tendency and range by: determining the measures of central tendency (mean, median, mode) and range; determining the most appropriate measures of central tendency to report findings.
- Create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems.
- Identify and plot points in the four quadrants of a Cartesian plane using integral ordered pairs.

#### Probability

- Identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events.
- Determine the theoretical probability (determined using a tree diagram, table, or another graphic organizer).