



## Grade 6 General Stream (Reveal) Scheme of Work, Term 1, Academic Year 2022-2023

### Purpose

- to define the **required** Elite Stream Mathematics Student Learning Outcomes to be covered during the term for this grade;
- to **recommend** the pace at which the Student Learning Outcomes are to be covered. The term's content is broken down into eleven teaching weeks, allowing the coverage of topics within each week to be flexible.

### Assessment

- Assessment details for Term 1 will be communicated separately.

Teachers should incorporate the Standards for Mathematical Practice (SMPs) in their instruction when and where appropriate. The Standards for Mathematical Practice are

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### Why are the Standards for Mathematical Practice important?

The Standards for Mathematical Practice set expectations for using mathematical language and representations to reason, solve problems, and model in preparation for careers and a wide range of college majors.

### Week 1: Aug. 29 – Sept. 2, 2022

This week can be used to get to know your students, establish classroom routines, and finalize class lists. It is also an opportunity to review prerequisite concepts and skills which students will need for Grade 6 and to administer teacher-created diagnostics.

### Week 2: Sept. 5 – 9, 2022

#### Module 1 – Ratios and Rates

Lessons	Student Learning Outcomes	Common Core State Standards
M1L1 – Understand Ratios	<ul style="list-style-type: none"><li>• Show a ratio relationship between two quantities using different representations.</li><li>• Describe a ratio relationship using correct mathematical language.</li></ul>	<b>6.RP.1</b> Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
M1L2 – Tables of Equivalent Ratios	<ul style="list-style-type: none"><li>• Represent a collection of equivalent ratios.</li><li>• Show a ratio relationship between two quantities using tables of equivalent ratios and double number lines.</li></ul>	<b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
M1L3 – Graphs of Equivalent Ratios	<ul style="list-style-type: none"><li>• Represent a collection of equivalent ratios as ordered pairs.</li><li>• Graph a ratio relationship on the coordinate plane.</li></ul>	<b>6.RP.3a</b> Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Week 3: Sept. 12 – 16, 2022		
Lessons	Student Learning Outcomes	Common Core State Standards
M1L4 – Compare Ratio Relationships	<ul style="list-style-type: none"> <li>Compare ratio relationships that are shown using different representations.</li> </ul>	<p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3a</b> Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p>
M1L5 – Solve Ratio Problems	<ul style="list-style-type: none"> <li>Solve real-world problems involving ratio relationships by using bar diagrams, double number lines, and equivalent ratios.</li> </ul>	<p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p>

**Week 4: Sept. 19 – 23, 2022**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M1L6 – Convert Customary Measurement Units	<ul style="list-style-type: none"> <li>Use ratio reasoning to convert between customary units of measurement.</li> </ul>	<p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3d</b> Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>
M1L7 – Understand Rates and Unit Rates	<ul style="list-style-type: none"> <li>Understand how a rate is related to a ratio.</li> <li>Use ratio and rate reasoning to find a unit rate.</li> </ul>	<p><b>6.RP.2</b> Understand the concept of a unit rate <math>a/b</math> associated with a ratio <math>a:b</math> with <math>b \neq 0</math>, and use rate language in the context of a ratio relationship.</p> <p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3a</b> Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p> <p><b>6.RP.3b</b> Solve unit rate problems including those involving unit pricing and constant speed.</p>

Week 5: Sept. 26 – 30, 2022		
Lessons	Student Learning Outcomes	Common Core State Standards
M1L8 – Solve Rate Problems	<ul style="list-style-type: none"> <li>Solve real-world problems involving rates and unit rates by using bar diagrams, double number lines, and equivalent rates.</li> </ul>	<p><b>6.RP.2</b> Understand the concept of a unit rate <math>a/b</math> associated with a ratio <math>a:b</math> with <math>b \neq 0</math>, and use rate language in the context of a ratio relationship.</p> <p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3b</b> Solve unit rate problems including those involving unit pricing and constant speed.</p>
Module 2 – Fractions, Decimals, and Percents		
M2L1 – Understand Percents	<ul style="list-style-type: none"> <li>Understand the meaning of a percent as a rate per 100.</li> <li>Model percents using <math>10 \times 10</math> grids and bar diagrams.</li> </ul>	<p>Foundational for:</p> <p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3c</b> Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.</p>

**Week 6: Oct. 3 – 7, 2022**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M2L2 – Percents Greater Than 100% and Less Than 1%	<ul style="list-style-type: none"> <li>Understand that percents can be greater than 100% or less than 1%.</li> <li>Use <math>10 \times 10</math> grids and bar diagrams to represent percents greater than 100% or less than 1%.</li> </ul>	<p><b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p><b>6.RP.3c</b> Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.</p>
M2L3 – Relate Fractions, Decimals, and Percents	<ul style="list-style-type: none"> <li>Relate fractions, decimals, and percents by using place-value reasoning and understanding a percent as a ratio that compares a number to 100.</li> </ul>	
M2L4 – Find the Percent of a Number	<ul style="list-style-type: none"> <li>Find the percent of a number by reasoning about percent as a rate per 100 and by using bar diagrams, ratio tables, equivalent ratios, and double number lines.</li> </ul>	

**Week 7: Oct. 10 – 14, 2022**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M2L5 – Estimate the Percent of a Number	<ul style="list-style-type: none"> <li>Estimate the percent of a number by using benchmark percents and rounding.</li> </ul>	<b>6.RP.3</b> Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. <b>6.RP.3c</b> Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
M2L6 – Find the Whole	<ul style="list-style-type: none"> <li>Find the whole, given the part and the percent by using bar diagrams, ratio tables, double number lines, and equivalent ratios.</li> </ul>	

**Week 8: Oct. 17 – 21, 2022****Module 3 – Compute with Multi-Digit Numbers and Fractions**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M3L1 – Divide Multi-Digit Whole Numbers	<ul style="list-style-type: none"><li>• Use the standard algorithm to divide multi-digit numbers when solving problems.</li></ul>	<b>6.NS.2</b> Fluently divide multi-digit numbers using the standard algorithm.
M3L2 – Compute with Multi-Digit Decimals	<ul style="list-style-type: none"><li>• Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit decimals.</li></ul>	<b>6.NS.3</b> Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
M3L3 – Divide Whole Numbers by Fractions	<ul style="list-style-type: none"><li>• Apply prior knowledge about multiplication, division, and operations on multi-digit numbers to divide whole numbers by fractions.</li></ul>	<b>6.NS.1</b> Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.



**Week 9: Oct. 24 – 28, 2022**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M3L4 – Divide Fractions by Fractions	<ul style="list-style-type: none"><li>• Apply prior knowledge about multiplication and division with whole numbers and the division of whole numbers by fractions to divide fractions by fractions.</li></ul>	<b>6.NS.1</b> Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
M3L5 – Divide with Whole and Mixed Numbers	<ul style="list-style-type: none"><li>• Apply prior knowledge about division and reciprocals to divide fractions by whole and mixed numbers.</li></ul>	

**Week 10: Oct. 31 – Nov. 4, 2022**

**Module 4 – Integers, Rational Numbers, and the Coordinate Plane**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M4L1 – Represent Integers	<ul style="list-style-type: none"> <li>• Use positive and negative numbers, as well as 0, to represent quantities in everyday life.</li> <li>• Use a number line to visually represent quantities in everyday life.</li> </ul>	<p><b>6.NS.5</b> Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/ debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p> <p><b>6.NS.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p>
M4L2 – Opposites and Absolute Value	<ul style="list-style-type: none"> <li>• Understand the absolute value of integers.</li> <li>• Understand how to order integers.</li> </ul>	<p><b>6.NS.5</b> Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/ debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p> <p><b>6.NS.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p><b>6.NS.7</b> Understand ordering and absolute value of rational numbers.</p>
M4L3 – Compare and Order Integers	<ul style="list-style-type: none"> <li>• Correctly order rational numbers, including integers and absolute values.</li> <li>• Use a number line to write a statement of inequality.</li> </ul>	<p><b>6.NS.7</b> Understand ordering and absolute value of rational numbers.</p>

**Week 11: Nov. 7 – 11, 2022**

<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M4L4 – Rational Numbers	<ul style="list-style-type: none"> <li>• Order rational numbers.</li> <li>• Understand that the absolute value of rational numbers shows their distance from 0.</li> </ul>	<p><b>6.NS.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <p><b>6.NS.7</b> Understand ordering and absolute value of rational numbers.</p>
M4L5 – The Coordinate Plane	<ul style="list-style-type: none"> <li>• Recognize rational numbers.</li> <li>• Graph rational numbers in the coordinate plane.</li> </ul>	<p><b>6.NS.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p>
M4L6 – Graph Reflections of Points	<ul style="list-style-type: none"> <li>• Recognize that the coordinates of points reflected across either axis differ by the sign of one of the coordinates.</li> </ul>	<p><b>6.NS.8</b> Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p>

<b>Week 12: Nov. 14 – 18, 2022</b>		
<b>Lessons</b>	<b>Student Learning Outcomes</b>	<b>Common Core State Standards</b>
M4L7 – Absolute Value and Distance	<ul style="list-style-type: none"> <li>Use coordinates and absolute value to find the distance between points with the same <math>x</math>- or the same <math>y</math>-coordinates.</li> </ul>	<b>6.NS.8</b> Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

<b>Week 13: Nov. 21 – 25, 2022</b> <b>Week 14: Nov. 28 – Dec. 2, 2022</b> <b>Week 15: Dec. 5 – 9, 2022</b>		
<b>Term 1 Revision and End-of-Term Exam</b> <b>Exam date to be determined by the Assessment Directorate</b>		