UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Grade 6 Mainstream Mathematics (Reveal)
Scheme of Work, Term 2, Academic Year 2022-2023

Purpose
- to define the **required** Mainstream 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 nine teaching weeks, allowing the coverage of topics within each week to be flexible.

Assessment
- Assessment details for Term 2 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: Jan. 2 – 6, 2023		
Module 5 – Numerical and Algebraic Expressions		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L1 – Powers and Exponents	• Write a product of whole numbers, fractions, or decimals as a power and write a power as a product of factors.	**6.EE.A.1** Write and evaluate numerical expressions involving whole-number exponents.
M5L2 – Numerical Expressions	• Write and evaluate a numerical expression using the correct order of operations.	**6.EE.A.1** Write and evaluate numerical expressions involving whole-number exponents. **6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.2C** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.

Week 2: Jan. 9 – 13, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L3 – Write Algebraic Expressions *Explore: Write Algebraic Expressions*	• Identify parts of an expression from a verbal description in order to write an algebraic expression, using variables for unknown quantities, that models a real-world or mathematical problem.	**6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.2A** Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$. **6.EE.A.2B** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
M5L4 – Evaluate Algebraic Expressions *Explore: Algebraic Expressions*	• Use the order of operations to evaluate algebraic expressions for given values.	**6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.2C** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Week 3: Jan. 16 – 20, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L5 – Factors and Multiples *Explore: Greatest Common Factor* *Explore: Least Common Multiple*	• Find the greatest common factor and least common multiple of two whole numbers.	**6.NS.B.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the Distributive Property to express a sum of two whole numbers $1–100$ with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36 + 8$ as $4(9 + 2)$.
M5L6 – Use the Distributive Property *Explore: Use Algebra Tiles to Model the Distributive Property*	• Use the Distributive Property to evaluate numerical expressions, to rewrite algebraic expressions, and to factor numerical and algebraic expressions.	**6.NS.B.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the Distributive Property to express a sum of two whole numbers $1–100$ with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36 + 8$ as $4(9 + 2)$. **6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.2B** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms. **6.EE.A.3** Apply the properties of operations as strategies to generate equivalent expressions. For example, apply the Distributive Property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.

Week 4: Jan. 23 – 27, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L7 – Equivalent Algebraic Expressions *Explore: Properties and Equivalent Expressions*	• Use the properties of operations to write expressions in simplest form and check to see if two expressions are equivalent.	**6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.3** Apply the properties of operations as strategies to generate equivalent expressions. For example, apply the Distributive Property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$. **6.EE.A.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.

Week 5: Jan. 30 – Feb. 3, 2023		
Module 6 – Equations and Inequalities		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M6L1 – Use Substitution to Solve One-Step Equations	• Use substitution to determine whether a given number is a solution of a one-step equation.	**6.EE.B.5** Understand solving an equation or inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
M6L2 – One-Step Addition Equations *Explore: Use Bar Diagrams to Write Addition Equations* *Explore: One-Step Addition Equations*	• Write and solve addition equations for real-world and mathematical problems by using the Subtraction Property of Equality.	**6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.

Week 6: Feb. 6 – 10, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M6L3 – One-Step Subtraction Equations *Explore: Use Bar Diagrams to Write Subtraction Equations*	• Write and solve subtraction equations for real-world and mathematical problems by using the Addition Property of Equality.	**6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
M6L4 – One-Step Multiplication Equations *Explore: Use Bar Diagrams to Write Multiplication Equations*	• Write and solve multiplication equations for real-world and mathematical problems by using the Division Property of Equality.	

Week 7: Feb. 13 – 17, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M6L5 – One-Step Division Equations *Explore: Use Bar Diagrams to Write Division Equations*	• Write and solve division equations for real-world and mathematical problems by using the Multiplication Property of Equality.	**6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
M6L6 – Inequalities *Explore: Inequalities*	• Understand how inequalities are similar to and different from equations, and graph the solution of an inequality on a number line.	**6.EE.B.5** Understand solving an equation or inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.8** Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. **6.NS.C.6** 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. **6.NS.C.6C** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Week 8: Feb. 20 – 24, 2023		
Module 7 – Relationships Between Two Variables		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M7L1 – Relationships Between Two Variables *Explore: Relationships Between Two Variables*	• Use equations and rules to find missing values of independent and dependent variables in tables.	**6.EE.C.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time. **6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. **6.EE.A.2C** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
M7L2 – Write Equations to Represent Relationships Represented in Tables *Explore: Relationships with Rules that Require Two Steps*	• Use variables, which represent independent and dependent values, to write one-step and two-step equations from real-world situations.	

Week 9: Feb. 27 – March 3, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M7L3 – Graphs of Relationships	• Graph a relationship represented by an equation and write an equation represented by a graph by identifying and using the independent and dependent variables.	**6.EE.C.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time. **6.RP.A.3** 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. **6.RP.A.3A** 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. **6.NS.C.6** 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. **6.NS.C.6C** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. **6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **6.EE.B.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
M7L4 – Multiple Representations	• Identify the independent and dependent variables in a given scenario and use that information to create an equation, table, and graph that represent the situation.	

Week 10: March 6 – 10, 2023 Week 11: March 13 – 17, 2023 Week 12: March 20 – 24, 2023
Term 2 Revision and End-of-Term Exam **Exam date to be determined by the Assessment Directorate**