UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Grade 7 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 – Algebraic Expressions		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L1 – Simplify Algebraic Expressions	• Simplify algebraic expressions by identifying and combining like terms.	**7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.2** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
M5L2 – Add Linear Expressions	• Use different methods to add linear expressions.	**7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
M5L3 – Subtract Linear Expressions	• Use different methods to subtract linear expressions.	

Week 2: Jan. 9 – 13, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M5L4 – Factor Linear Expressions	• Use GCFs to factor linear expressions.	**7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
M5L5 – Combine Operations with Linear Expressions	• Combine operations to simplify linear expressions.	

Week 3: Jan. 16 – 20, 2023		
Module 6 – Write and Solve Equations		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M6L1 – Write and Solve One-Step Equations	• Write one-step equations involving integers and rational numbers and use inverse operations to solve the equations.	**7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
M6L2 – Solve Two-Step Equations: $px + q = r$	• Use inverse operations to solve two-step equations of the form $px + q = r$.	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
M6L3 – Write and Solve Two-Step Equations: $px + q = r$	• Write two-step equations of the form $px + q = r$ and use inverse operations to solve the equations.	

Week 4: Jan. 23 – 27, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M6L4 – Solve Two-Step Equations: $p(x+q)=r$	• Use inverse operations to solve two-step equations of the form $p(x+q)=r$.	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4a** Solve word problems leading to equations of the form $px+q=r$ and $p(x+q)=r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
M6L5 – Write and Solve Two-Step Equations: $p(x+q)=r$	• Write two-step equations of the form $p(x+q)=r$ and use inverse operations to solve the equations.	

Week 5: Jan. 30 – Feb. 3, 2023		
Module 7 – Write and Solve Inequalities		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M7L1 – Solve One-Step Addition and Subtraction Inequalities	• Use inverse operations to solve one-step addition and subtraction inequalities.	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4b** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
M7L2 – Write and Solve One-Step Addition and Subtraction Inequalities	• Write one-step addition and subtraction inequalities from real-world situations and use inverse operations to solve the inequalities.	

Week 6: Feb. 6 – 10, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M7L3 – Solve One-Step Multiplication and Division Inequalities with Positive Coefficients	• Use inverse operations to solve one-step multiplication and division inequalities with positive coefficients.	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4b** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
M7L4 – Solve One-Step Multiplication and Division Inequalities with Negative Coefficients	• Use inverse operations to solve one-step multiplication and division inequalities with negative coefficients.	

Week 7: Feb. 13 – 17, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M7L5 – Write and Solve One-Step Multiplication and Division Inequalities	• Write one-step multiplication and division inequalities from real-world situations and use inverse operations to solve the inequalities.	**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4b** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
M7L6 – Write and Solve Two-Step Inequalities	• Write two-step inequalities from real-world situations and use inverse operations to solve the inequalities.	

Week 8: Feb. 20 – 24, 2023		
Module 8 – Geometric Figures		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M8L1 – Vertical and Adjacent Angles	• Identify vertical and adjacent angles and use them to write and solve equations to find unknown angle measures.	**7.G.5** Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. **7.EE.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. **7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
M8L2 – Complementary and Supplementary Angles	• Identify complementary and supplementary angles and use them to write and solve equations to find unknown angle measures.	
M8L3 – Triangles	• Classify and draw triangles freehand, with tools, and with technology given certain conditions, such as angle measures or side lengths.	**7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Week 9: Feb. 27 – March 3, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
M8L4 – Scale Drawings	• Use ratio reasoning to find actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale.	**7.G.1** Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. **7.RP.2** Recognize and represent proportional relationships between quantities. **7.RP.2b** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. **7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
M8L5 – Three-Dimensional Figures	• Describe three-dimensional figures and determine the shapes resulting from horizontal, vertical, and angled cross sections.	**7.G.3** Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

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**