UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Grade 5 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		
Unit 8 – Divide Decimals		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U8L1 – Division Patterns with Decimals and Powers of 10	• Use place-value patterns to divide a decimal by a power of 10. • Explain patterns when dividing a decimal by a power of 10.	**5.NBT.A** Understand the place value system. **5.NBT.A.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
U8L2 – Estimate Quotients of Decimals	• Explain how to estimate quotients of decimals. • Estimate quotients of decimals to determine if calculations are reasonable. • Use an estimated quotient to make predictions about a calculated solution.	**5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths. **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
U8L3 – Represent Division of Decimals by a Whole Number	• Represent division of decimals by whole numbers using equal sharing or equal grouping.	

Week 2: Jan. 9 – 13, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U8L4 – Divide Decimals by Whole Numbers	• Use place-value understanding and equivalent representations to divide a decimal by a whole number.	**5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths. **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
U8L5 – Divide Whole Numbers by Decimals	• Use decimal grids to represent and solve a division equation. • Write an equivalent equation with a whole-number divisor to solve a division equation.	
U8L6 – Divide Decimals by Decimals	• Write an equivalent equation containing whole numbers to solve a division equation.	

Week 3: Jan. 16 – 20, 2023		
Unit 9 – Add and Subtract Fractions		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U9L1 – Estimate Sums and Differences of Fractions	• Use benchmark numbers to estimate the sums and differences of fractions. • Explain how to use an estimate to predict a calculated solution. • Explain how to use an estimate to check the reasonableness of a calculated solution.	**5.NF.A** Use equivalent fractions as a strategy to add and subtract fractions. **5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result* $\frac{2}{5}+\frac{1}{2}=\frac{3}{7}$ *by observing that* $\frac{3}{7}<\frac{1}{2}$.
U9L2 – Represent Addition of Fractions with Unlike Denominators	• Use a representation to add fractions with unlike denominators. • Explain how to use a representation to add fractions with unlike denominators.	**5.NF.A** Use equivalent fractions as a strategy to add and subtract fractions. **5.NF.A.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,* $\frac{2}{3}+\frac{5}{4}=\frac{8}{12}+\frac{15}{12}=\frac{23}{12}$. (In general, $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}$.)
U9L3 – Add Fractions with Unlike Denominators	• Add fractions with unlike denominators. • Explain how to add fractions with unlike denominators.	

Week 4: Jan. 23 – 27, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U9L4 – Represent Subtraction of Fractions with Unlike Denominators	• Use a representation to subtract fractions with unlike denominators. • Explain how to use a representation to subtract fractions with unlike denominators.	**5.NF.A** Use equivalent fractions as a strategy to add and subtract fractions. **5.NF.A.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,* $\frac{2}{3}+\frac{5}{4}=\frac{8}{12}+\frac{15}{12}=\frac{23}{12}$. (In general, $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}$.)
U9L5 – Subtract Fractions with Unlike Denominators	• Subtract fractions with unlike denominators. • Explain how to subtract fractions with unlike denominators.	
U9L6 – Add Mixed Numbers with Unlike Denominators	• Add mixed numbers with unlike denominators. • Explain how to add mixed numbers with unlike denominators.	

Week 5: Jan. 30 – Feb. 3, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U9L7 – Subtract Mixed Numbers with Unlike Denominators	• Subtract mixed numbers with unlike denominators. • Explain how to subtract mixed numbers with unlike denominators.	**5.NF.A** Use equivalent fractions as a strategy to add and subtract fractions. **5.NF.A.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,* $\frac{2}{3}+\frac{5}{4}=\frac{8}{12}+\frac{15}{12}=\frac{23}{12}$. (In general, $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}$.)
U9L8 – Add and Subtract Mixed Numbers with Regrouping	• Add and subtract mixed numbers with regrouping.	
U9L9 – Solve Problems Involving Fractions and Mixed Numbers	• Solve word problems involving fractions.	**5.NF.A** Use equivalent fractions as a strategy to add and subtract fractions. **5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result* $\frac{2}{5}+\frac{1}{2}=\frac{3}{7}$ *by observing that* $\frac{3}{7}<\frac{1}{2}$.

Week 6: Feb. 6 – 10, 2023		
Unit 10 – Multiply Fractions		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U10L1 – Represent Multiplication of a Fraction by a Whole Number	• Use a representation to multiply a whole number by a fraction. • Explain how to use a representation to multiply a whole number by a fraction.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. **5.NF.B.4.a** Interpret the product $\frac{a}{b} \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show* $\frac{2}{3} \times 4 = \frac{8}{3}$*, and create a story context for this equation. Do the same with* $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$. (In general, $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$.)
U10L2 – Multiply a Fraction by a Whole Number	• Multiply a whole number by a fraction.	
U10L3 – Represent Multiplication of a Fraction by a Fraction	• Use a representation to multiply a fraction by a fraction. • Explain how to use a representation to multiply a fraction by a fraction.	

Week 7: Feb. 13 – 17, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U10L4 – Multiply a Fraction by a Fraction	• Multiply a fraction by a fraction.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. **5.NF.B.4.a** Interpret the product $\frac{a}{b} \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show* $\frac{2}{3} \times 4 = \frac{8}{3}$*, and create a story context for this equation. Do the same with* $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$. (In general, $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$.)
U10L5 – Determine the Area of Rectangles with Fractional Side Lengths	• Find the area of a rectangle with fractional side lengths by tiling it with unit squares with unit fraction side lengths. • Find the area of a rectangle with fractional side lengths by multiplying the side lengths.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. **5.NF.B.4.b** Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

Week 8: Feb. 20 – 24, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U10L6 – Represent Multiplication of Mixed Numbers	• Use an area model to represent multiplication of mixed numbers. • Use an area model to find partial products when multiplying mixed numbers.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. **5.NF.B.4.a** Interpret the product $\frac{a}{b} \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show* $\frac{2}{3} \times 4 = \frac{8}{3}$, *and create a story context for this equation. Do the same with* $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$. (In general, $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$.)
U10L7 – Multiply Mixed Numbers	• Use partial products to multiply mixed numbers. • Multiply mixed numbers by writing the mixed numbers as fractions and then multiplying fractions.	
U10L8 – Multiplication as Scaling	• Explain how the size of the factors impacts the size of the product without performing the multiplication. • Explain why the product of a given number and a fraction greater than 1 is greater than the number and why the product of a given number and a fraction less than 1 is less than the given number.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.5** Interpret multiplication as scaling (resizing), by: **5.NF.B.5.a** Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. **5.NF.B.5.b** Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{n \times a}{n \times b}$ to the effect of multiplying $\frac{a}{b}$ by 1.

Week 9: Feb. 27 – March 3, 2023		
Lessons	**Student Learning Outcomes**	**Common Core State Standards**
U10L9 – Solve Problems Involving Fractions	• Solve word problems involving fractions.	**5.NF.B** Apply and extend previous understandings of multiplication and division. **5.NF.B.6** Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

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**