CHIEF ACADEMIC OFFICE

5TH GRADE BIE ESSENTIAL STANDARDS

MATHEMATICS

8-13-2025

Interim 1 Standards	
M.BIE.5.NBT. A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
M.BIE.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.
M.BIE.5.NBT. A.3	Read, write, and compare decimals to thousandths.
M.BIE.5.NBT. A.4	Use place value understanding to round decimals to any place.
M.BIE.5.NBT. B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
M.BIE.5.NBT. B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
M.BIE.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.
M.BIE.5. OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
M.BIE.5. OA.A.2	Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.
Interim 2 Standards	
M.BIE.5. MD.B.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.
M.BIE.5. MD.C.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
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M, BIE.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, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
M. BIE.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 $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.
M. BIE.5.NF. B.3	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
M.BIE.5. NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. CCSS.Math.Content.5.NF.B.4.a Interpret the product $(a/b) \times q$ 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 $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = (ac)/(bd)$.
M. BIE.5.NF. B.5	Interpret multiplication as scaling (resizing), by: CCSS.Math.Content.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. CCSS.Math.Content.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 $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
M. BIE.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.
M. BIE.5.NF. B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

| | Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade. |