

### 4th Grade BIE Essential Math Standards

#### Interim 1 Standards

1.	M.BIES.3.MD.C.07.B	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. (8-10 days)
2.	M.BIES.4.NBT.A.01	The Highly Proficient student can determine that a digit in one place represents ten times what it represents in the place to its right in real world contexts. (8-10 days)
3.	M.BIES.4.NBT.A.02	The Highly Proficient student can use place value understandings to read, write, and compare multi-digit whole numbers in real world contexts. (4-6 days)
4.	M.BIES.4.NBT.A.03	The Highly Proficient student can use place value understanding to round multi-digit whole numbers in real world contexts. (6-8 days)
5.	M.BIES.4.NBT.B.04	The Highly Proficient student can fluently add and subtract multi-digit whole numbers using the standard algorithm. (4-6 days)
6.	M.BIES.4.OA.B.04	Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. (6-8 days)
7.	M.BIES.4.OA.C.05	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. (8-10 days)

#### Interim 2 Standards

1.	M.BIES.4.NBT.B.05	The Highly Proficient student can use and explain different multiplication strategies when solving 4 digit by 1 and 2 digit real world problems.
2.	M.BIES.4.NBT.B.06	The Highly Proficient student can use and explain different division strategies when dividing 4 digit dividends by 1 digit divisors with remainders.
3.	M.BIES.4.NBT.A.01	The Highly Proficient student can determine that a digit in one place represents ten times what it represents in the place to its right in real world contexts.
4.	M.BIES.4.NF.A.01	The Highly Proficient student can use a variety of strategies to generate and explain why one fraction is equivalent to another fraction.
5.	M.BIES.4NF.A.02	The Highly Proficient student can compare and order fractions with different numerators and different denominators.

6.	M.BIES.4.NF.B.03	The Highly Proficient student can add and subtract more than 2 fractions with like denominators and can decompose a fraction into a sum with the same denominator in multiple ways. The Highly Proficient student can add and subtract more than 2 mixed numbers with like denominators and can solve word problems by adding and subtracting mixed numbers with like denominators.
		a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
		b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ ; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$ ; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$ .
7.	M.BIES.4.OA.A.01	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
8.	M.BIES.4.OA.A.02	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
9.	MBIES.4.OA.A.03	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
Additional Standards:		
10.	M.BIES.4.G.A.01	The Highly Proficient student can draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
11.	M.BIES.4.G.A.02	The Highly Proficient student can create a two-dimensional shape when given specific attributes.
Interim 3 Standards		
1.	M.BIES.4.NF.B.3.b	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ ; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$ ; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$ .
2.	M.BIES.4.NF.B.3.c	Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
3.	M.BIES.4.NF.B.3.d	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
4.	M.BIES.4.MD.A.02	The Highly Proficient student can use the four operations to solve multi-step word problems including problems with fractions or decimals and can represent measurement quantities using diagrams.

5.	M.BIES.4.MD.B.04	The Highly Proficient student can make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ , $1/4$ , $1/8$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
6.	M.BIES.4.NF.B.04.a	Understand a fraction $a/b$ as a multiple of $1/b$ . For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$ , recording the conclusion by the equation $5/4 = 5 \times (1/4)$ .
7.	M.BIES.4.NF.B.04.b	Understand a multiple of $a/b$ as a multiple of $1/b$ , and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$ , recognizing this product as $6/5$ . (In general, $n \times (a/b) = (n \times a)/b$ .)
8.	M.BIES.4.NF.B.04.c	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
9.	M.BIES.4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express $3/10$ as $30/100$ , and add $3/10 + 4/100 = 34/100$ .
10.	M.BIES.4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite $0.62$ as $62/100$ ; describe a length as $0.62$ meters; locate $0.62$ on a number line diagram.
11.	M.BIES.4.NF.C.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$ , $=$ , or $<$ , and justify the conclusions, e.g., by using a visual model.
<b>Suggested Standards:</b>		
12.	M.BIES.4.MD.C.05	The Highly Proficient student can decompose angles into multiple angles and give the measure of each angle in relationship to the whole.
13.	M.BIES.4.MD.C.06	The Highly Proficient student can measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
14.	M.BIES.4.OA.C.06	The Highly Proficient student can solve problems and assess the reasonableness of answers using mental computation and estimation strategies including rounding.
15.	M.BIES.4.MD.A.03	The Highly Proficient student can apply area and perimeter formulas for rectilinear shapes in real world and mathematical problems.
16.	M.BIES.4.G.A.03	The Highly Proficient student can understand a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
17.	M.BIES.4.MD.A.01	The Highly Proficient student can determine the appropriate unit of measurement in a given context.