

6th Grade BIE Essential Math Standards

Interim 1 Standards

1.	M.BIES.5.NBT.B.07	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. (8-10 days)
2.	M.BIES.6.RPA.01	The student can describe a ratio relationship and compare two quantities multiplicatively. (6-8 days)
3.	M.BIES.6.RPA.02	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger." ¹ (4-6 days)
4.	M.BIES.6.RPA.03.a	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. (8-10 days)
5.	M.BIES.6.RPA.03.b	Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? (4-6 days)
6.	M.BIES.6.RPA.03.c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent. (6-8 days)
7.	M.BIES.6.RPA.03.d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. (6-8 days)

Interim 2 Standards

1.	M.BIES.6.NS.A.01	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
2.	M.BIES.6.NS.B.02	Fluently divide multi-digit numbers using the standard algorithm.
3.	M.BIES.6.NS.B.03	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
4.	M.BIES.6.NS.B.04	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 $4(9 + 2)$..
5.	M.BIES.6.NS.C.05	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

6.	M.BIES.6.NS.C.06.a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.
7.	M.BIES.6.NS.C.06.c	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.
8.	M.BIES.6.RPA.01"	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
9.	M.BIES.6.RPA.03.b	Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
Suggested Standards:		
10.	M.BIES.6.EE.A.03	The Highly Proficient student can use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set.
11.	M.BIES.6.EE.B.05	The Highly Proficient student can solve an equation or inequality to choose or create a set of values that make the equation or inequality true.
12.	M.BIES.6.EE.B.06	The Highly Proficient student can 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.
13.	M.BIES.6.EE.B.07	The Highly Proficient student can create and solve a one-step equation to represent a real-world problem.
14.	M.BIES.6.EE.B.08	The Highly Proficient student can create, solve, and graph inequalities to represent constraints in a real-world problem.
Interim 3 Standards		
1.	M.BIES.6.EE.A.01	The Highly Proficient student can write and evaluate numerical expressions involving whole number exponents.
2.	M.BIES 6.EE.A.02.a	Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$.
3.	M.BIES 6.EE.A.02.b	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.
4.	M.BIES.6.EE.A.02.c	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 $s = 1/2$.

5. M.BIES.6.EE.A.04	The Highly Proficient student can use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set.
6. M.BIES.6.NS.C.06.b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
7. M.BIES.6.NS.C.06.c	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.
8. M.BIES.6.NS.C.07.a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.
9. M.BIES.6.NS.C.07.b	Write, interpret, and explain statements of order for rational numbers in real-world contexts.
10. M.BIES.6.NS.C.07.c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of -30 dollars, write $ -30 = 30$ to describe the size of the debt in dollars.
11. M.BIES.6.NS.C.07.d	Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.
12. M.BIES.6.NS.C.08	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
Additional Standards:	
13. M.BIES.6.EE.C.09	The Highly Proficient student can create a real-world context using dependent and independent variables by constructing a table, graph, or equation.
14. M.BIES.6.G.A.01	The Highly Proficient student can find the area of regular and irregular polygons by composing into rectangles or decomposing into triangles or other shapes.
15. M.BIES.6.G.A.02	The Highly Proficient student can find the volume of a right rectangular prism with fractional edge lengths using unit cubes and/or the traditional formula.
16. M.BIES.6.G.A.03	The Highly Proficient student can find a missing vertex of a polygon given other vertices.
17. M.BIES.6.G.A.04	The Highly Proficient student can solve real world problems by finding surface area for three dimensional figures using nets with fractional edges.
18. M.BIES.6.SPA.01.02.03	The Highly Proficient student can create a statistical question given a context and develop a data set with a given measure of center, spread, and overall shape, and determine how additional data points impact these measures.
19. M.BIES.6.SP.B.04	The Highly Proficient student can interpret numerical data by creating a histogram, box plot, and/or dot plot.

20. M.BIES.6.SP.B.05

The Highly Proficient student can summarize numerical data sets in relation to their context by finding measures of center, variability, and overall patterns