



Dr. Jennifer McCormick
Superintendent of Public Instruction

DEPARTMENT OF EDUCATION

Working Together for Student Success



Indiana Academic Standards Mathematics: Grade 6 Crosswalk

2014 Standard Language	2020 Standard Language	Changes
Grade Six		
Number Sense		
6.NS.1 Understand that positive and negative numbers are used 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 and compare quantities in real-world contexts, explaining the meaning of 0 in each situation.	6.NS.1 Understand that positive and negative numbers are used 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 and compare quantities in real-world contexts, explaining the meaning of 0 in each situation.	No Change
6.NS.2 Understand the integer number system. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of a number is the number itself (e.g., $-(-3) = 3$), and that 0 is its own opposite.	6.NS.2 Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of a number is the number itself (e.g., $-(-3) = 3$), and that 0 is its own opposite.	Removed <i>understand the integer number system</i>
6.NS.3 Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	6.NS.3 Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	No Change
6.NS.4 Understand that the	6.NS.4 Understand that the	No Change

<p>absolute value of a number is the distance from zero on a number line. Find the absolute value of real numbers and know that the distance between two numbers on the number line is the absolute value of their difference. Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.</p>	<p>absolute value of a number is the distance from zero on a number line. Find the absolute value of real numbers and know that the distance between two numbers on the number line is the absolute value of their difference. Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.</p>	
<p>6.NS.5 Know commonly used fractions (halves, thirds, fourths, fifths, eighths, tenths) and their decimal and percent equivalents. Convert between any two representations (fractions, decimals, percents) of positive rational numbers without the use of a calculator.</p>	<p>6.NS.5 Know commonly used fractions (halves, thirds, fourths, fifths, eighths, tenths) and their decimal and percent equivalents. Convert between any two representations (fractions, decimals, percents) of positive rational numbers without the use of a calculator.</p>	<p>No Change</p>
<p>6.NS.6 Identify and explain prime and composite numbers.</p>	<p>6.NS.6 Identify and explain prime and composite numbers.</p>	<p>No Change</p>
<p>6.NS.7 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 from 1 to 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.</p>	<p>6.NS.7 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 from 1 to 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.</p>	<p>No Change</p>

6.NS.8 Interpret, model, and use ratios to show the relative sizes of two quantities. Describe how a ratio shows the relationship between two quantities. Use the following notations: a/b , a to b , $a:b$.	6.NS.8 Interpret, model, and use ratios to show the relative sizes of two quantities. Describe how a ratio shows the relationship between two quantities. Use the following notations: a/b , a to b , $a:b$.	No Change
6.NS.9 Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.	6.NS.9 Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.	No Change
6.NS.10 Use reasoning involving rates and ratios to model real-world and other mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).	6.NS.10 Use reasoning involving rates and ratios to model real-world and other mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).	No Change
Computation		
6.C.1 Divide multi-digit whole numbers fluently using a standard algorithmic approach.	6.C.1 Divide multi-digit whole numbers fluently using a standard algorithmic approach.	No Change
6.C.2 Compute with positive fractions and positive decimals fluently using a standard algorithmic approach.	6.C.2 Compute with positive fractions and positive decimals fluently using a standard algorithmic approach.	No Change
6.C.3 Solve real-world problems with positive fractions and decimals by using one or two operations.	6.C.3 Solve real-world problems with positive fractions and decimals by using one or two operations.	No Change

<p>6.C.4 Compute quotients of positive fractions and solve real-world problems involving division of fractions by fractions. Use a visual fraction model and/or equation to represent these calculations.</p>	<p>6.C.4 Compute quotients of positive fractions and solve real-world problems involving division of fractions by fractions. Use a visual fraction model and/or equation to represent these calculations.</p>	<p>No Change</p>
<p>6.C.5 Evaluate positive rational numbers with whole-number exponents.</p>	<p>6.C.5 Evaluate positive rational numbers with whole-number exponents.</p>	<p>No Change</p>
<p>6.C.6 Apply the order of operations and properties of operations (identity, inverse, commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property) to evaluate numerical expressions with nonnegative rational numbers, including those using grouping symbols, such as parentheses, and involving whole number exponents. Justify each step in the process.</p>	<p>6.C.6 Apply the order of operations and properties of operations (identity, inverse, commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property) to evaluate numerical expressions with nonnegative rational numbers, including those using grouping symbols, such as parentheses, and involving whole number exponents.</p>	<p>Removed <i>justify each step in the process</i></p>
<p>Algebra and Functions</p>		
<p>6.AF.1 Evaluate expressions for specific values of their variables, including expressions with whole-number exponents and</p>	<p>6.AF.1 Evaluate expressions for specific values of their variables, including expressions with whole-number exponents and those that arise from formulas</p>	<p>Added <i>geometry and other</i></p>

those that arise from formulas used in real-world problems.	used in geometry and other real-world problems.	
6.AF.2 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions and to justify whether two linear expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them.	6.AF.2 Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions and to justify whether two linear expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them.	No Change
6.AF.3 Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.	6.AF.3 Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.	No Change
6.AF.4 Understand that solving an equation or inequality is the process of answering the following question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	6.AF.4 Understand that solving an equation or inequality is the process of answering the following question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	No Change
6.AF.5 Solve equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ fluently for cases in which p , q and x are all	6.AF.5 Solve equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ fluently for cases in which p , q and x are all	No Change

nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems.	nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems.	
6.AF.6 Write an inequality of the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Recognize inequalities have infinitely many solutions and represent solutions on a number line diagram.	6.AF.6 Write an inequality of the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Recognize inequalities have infinitely many solutions and represent solutions on a number line diagram.	No Change
6.AF.7 Understand that signs of numbers in ordered pairs indicate the quadrant containing the point; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Graph points with rational number coordinates on a coordinate plane.	6.AF.7 Understand that signs of numbers in ordered pairs indicate the quadrant containing the point. Identify rules or patterns in the signs as they relate to the quadrants. Graph points with rational number coordinates on a coordinate plane.	Removed <i>recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes</i> Added <i>identify rules or patterns in the signs as they relate to the quadrants</i>
6.AF.8 Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with the same	6.AF.8 Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with	No Change

first coordinate or the same second coordinate.	the same first coordinate or the same second coordinate.	
6.AF.9 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.	6.AF.9 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.	No Change
6.AF.10 Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	6.AF.10 Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	No Change
Geometry and Measurement		
6.GM.1 Convert between measurement systems (English to metric and metric to English) given conversion factors, and use these conversions in solving real-world problems.	6.GM.1 Convert between measurement systems (English to metric and metric to English) given conversion factors, and use these conversions in solving real-world problems.	No Change
6.GM.2 Know that the sum of the interior angles of any	6.GM.2 Know that the sum of the interior angles of any	No Change

<p>triangle is 180° and that the sum of the interior angles of any quadrilateral is 360°. Use this information to solve real-world and mathematical problems.</p>	<p>triangle is 180° and that the sum of the interior angles of any quadrilateral is 360°. Use this information to solve real-world and mathematical problems.</p>	
<p>6.GM.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate; apply these techniques to solve real-world and other mathematical problems.</p>	<p>6.GM.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate; apply these techniques to solve real-world and other mathematical problems.</p>	<p>No Change</p>
<p>6.GM.4 Find the area of complex shapes composed of polygons by composing or decomposing into simple shapes; apply this technique to solve real-world and other mathematical problems.</p>	<p>6.GM.4 Find the area of complex shapes composed of polygons by composing or decomposing into simple shapes; apply this technique to solve real-world and other mathematical problems.</p>	<p>No Change</p>
<p>6.GM.5 Find the volume of a right rectangular prism with fractional edge lengths using unit cubes of the appropriate unit fraction edge lengths (e.g., using technology or concrete materials), and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right</p>	<p>6.GM.5 Find the volume of a right rectangular prism with fractional edge lengths using unit cubes of the appropriate unit fraction edge lengths (e.g., using technology or concrete materials), and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right</p>	<p>No Change</p>

rectangular prisms with fractional edge lengths to solve real-world and other mathematical problems.	rectangular prisms with fractional edge lengths to solve real-world and other mathematical problems.	
6.GM.6 Construct right rectangular prisms from nets and use the nets to compute the surface area of prisms; apply this technique to solve real-world and other mathematical problems.	6.GM.6 Construct right rectangular prisms from nets and use the nets to compute the surface area of prisms; apply this technique to solve real-world and other mathematical problems.	No Change
Data Analysis and Statistics		
6.DS.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for the variability in the answers. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	6.DS.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for the variability in the answers. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	No Change
6.DS.2 Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.	6.DS.2 Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.	No Change
6.DS.3 Formulate statistical questions; collect and organize the data (e.g., using technology); display and interpret the data with graphical	6.DS.3 Formulate statistical questions; collect and organize the data (e.g., using technology); display and interpret the data with	No Change

<p>representations (e.g., using technology).</p>	<p>graphical representations (e.g., using technology).</p>	
<p>6.DS.4 Summarize numerical data sets in relation to their context in multiple ways, such as: report the number of observations; describe the nature of the attribute under investigation, including how it was measured and its units of measurement; determine quantitative measures of center (mean and/or median) and spread (range and interquartile range), as well as; describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; and relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.</p>	<p>6.DS.4 Summarize numerical data sets in relation to their context in multiple ways, such as: report the number of observations; describe the nature of the attribute under investigation, including how it was measured and its units of measurement; determine quantitative measures of center (mean and/or median) and spread (range and interquartile range); describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.</p>	<p>Removed <i>as well as</i> Removed <i>and</i>.</p>