## 6th Grade Math

| Units of Study * all instructional days include 1 extra day to assess REVEAL Units of Study |  |
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| Math <br> Connect | Daily Skill Practice |
| $\underline{\text { Unit 1- }}$ | Ratios and Rates (August 10-September 8) 21 days |
| $\underline{\text { Unit 2 }}$ | Fractions, Decimals, and Percents (September 9-September 30) 16 days |
| $\underline{\text { Unit 3 }}$ | Compute with Multi-Digit Numbers and Fractions (October 3- October 27) 17 days |
| $\underline{\text { Unit 4 }}$ | Integers, Rational Numbers, and Coordinate Plane (October 28-December 6) 22 days |
| $\underline{\text { Unit 5 }}$ | Numerical and Algebraic Expressions (December 7-January 23) 22 days |
| $\underline{\text { Unit 6 }}$ | Equations and Inequalities (January 24-February 16) 18 days |
| $\underline{\text { Unit 7 }}$ | Relationships Between Two Variables (February 17-March 7) 12 days |
| $\underline{\text { Unit 8 }}$ | Area (March 8-April 12) 20 days |
| $\underline{\text { Unit 9 }}$ | Volume and Surface Area (April 13-May 3) 15 days |



|  | 6.AF.9 |  |  | X |  |  |  |  |  |  |
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|  | 6.AF.10 |  |  |  |  |  |  |  | X |  |
|  | 6.GM.1 |  |  |  | X |  |  |  |  |  |
|  | 6.GM.2 |  |  |  |  |  |  |  |  |  |
|  | 6.GM.3 |  |  |  |  |  |  |  | X |  |
|  | 6.GM.4 |  |  |  |  |  |  |  |  |  |
|  | 6.GM.5 |  |  |  |  |  |  |  | X |  |
|  | 6.GM.6 |  |  |  |  |  |  |  |  | X |
|  | 6.DS.1 |  |  |  |  |  |  |  |  | X |
|  | 6.DS.2 |  |  |  |  |  |  |  |  |  |
|  | 6.DS.3 |  |  |  |  |  |  |  |  |  |
|  | 6.DS.4 |  |  |  |  |  |  |  |  |  |

## Unit 1- Ratios and Rates

|  |  |
| :---: | :---: |
| In this unit the student will write ratios to compare quantities, find unit rates, use equivalent ratios to solve ratio problems, graph and describe ratio relationships, compare ratio relationships, use bar diagrams to solve ratio and rate problems, use equivalent ratios to solve ratio and rate problems, use double numbers lines to solve ratio and rate problems and convert measurements. |  |
| Priority Standards <br> - 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). | Supporting Standards <br> - 6.NS. 9 Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship. <br> - 6.NS. 8 relative sizes of two quantities. Describe how a ratio shows the relationship between two quantities. Use the following notations: $\mathrm{a} / \mathrm{b}$, a to $\mathrm{b}, \mathrm{a}: \mathrm{b}$. |
| Proficiency Scales | SEL Indicators |
| 6.NS. 10 | Self-Awareness |
|  | Self-Management |
|  | Social Awareness |


|  |  | Relationship Skills |  |
| :---: | :---: | :---: | :---: |
|  |  | Responsible Decision-Making |  |
| Conceptual Understanding <br> - Students deve ratio language between two $q$ <br> - Students come be part to who ratios in differ ratio relations <br> - Students apply solve real wor | nderstanding of ratios and escribe the relationship ities. nderstand that ratios can d part to part and write orms that express differen <br> ir understanding of ratios oblems. | Essential Questions <br> - How are two qu <br> - How can you us relationship bet quantities chang <br> - How can you us <br> - How can you us relationships? <br> - How can you us relationships? <br> - How can you so ratios? <br> - How can you us customary units <br> - How can you us quantities? <br> - How can you so rates? <br> - Can you underst | related? <br> ing to maintain the same o quantities as one of the <br> l to find equivalent ratios? to represent ratio and tables to compare ratio world problems involving <br> easoning to convert between urement? nd unit rates to compare world problems involving <br> a percent is a rate per 100 ? |
| Key Concepts <br> - I can understand the concept of a ratio. <br> - I can use tables to find equivalent ratios. | Indiana Process Standards: <br> - PS. 1 Make sense of problems and persevere in solving them. | Related Concepts <br> - N/A | Assessment Vocabulary Math Terms: <br> - Equivalent ratios <br> - Ratio <br> - Part-to-Part <br> - Part-to-Whole |


| - I can use graphs to represent ratio relationships. <br> - I can graph ordered pairs on the coordinate plane. <br> - I can use graphs and tables to compare ratio relationships <br> - I can solve realworld problems involving ratios. <br> - I can use ratio reasoning to convert between customary units of measurement. <br> - I can compare quantities by using unit rates. <br> - I can solve realworld problems involving rates. | - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning. |  | - Double Number Line <br> - Ratio Table <br> - Scaling <br> - Coordinate Plane <br> - Ordered Pair <br> - Origin <br> - X-axis <br> - X-coordinate <br> - Y-axis <br> - Y-Coordinate <br> - Unit Ratio <br> - Rate <br> - Unit Price <br> - Unit Rate <br> Academic Terms: <br> - Comparison <br> - Quantities |
| :---: | :---: | :---: | :---: |
| Textbook |  | Manipulatives/Materials | Digital |
| Lesson 1-1 |  | - Foldable | - Web Sketchpad |
| Lesson 1-2 |  | - Bar Diagrams | - Interactive Student |
| Lesson 1-3 |  | - Dry Erase Boards | Edition |
| Lesson 1-4 |  | - Dry Erase Markers | - Math Replay Videos |
| Lesson 1-5 |  | - Colored Pencils | - eToolkit |


| Lesson 1-6 Lesson 1-7 Lesson 1-8 | - Counters (2 different colors) <br> - Double Number Line <br> - Graph Paper <br> - Coordinate Plane <br> - Tape Diagrams <br> - Newspaper Sale Ads <br> - Math Journals | - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards |
| :---: | :---: | :---: |

Unit 2- Fractions, Decimals, and Percents

## General Description of the Unit

In this unit the student will identify a percent as a rate per 100, represent percents with $10 \times 10$ grids and bar diagrams, write fractions or mixed numbers as a percent, write percents as fractions or mixed numbers, write decimals as percents, write percents as decimals, find the percent of a number, use benchmark percents to estimate the percent of a number, and find the whole, given a percent and the part of a number.

## Priority Standards

- 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.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.


## Supporting Standards

- 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.9: Understand the concept of a unit rate and use terms related in the context of a ratio relationship.


## Proficiency Scales <br> 6.NS. 10 <br> 6.NS. 5

## SEL Indicators

Self-Awareness


- I can use $10 \times 10$ grids and bar diagrams to model percents.
- I can use $10 \times 10$ grids to model percents that are greater that $100 \%$ and less than $1 \%$.
- I can relate fractions, decimals, and percents.
- I can use bar diagrams, equivalent ratios, double number lines, and ratio tables to find the percent of a number.
- I can estimate the percent of number.
- I can find the whole given the percent and the part.


## Math Terms:

- Percent
- Rate Per 100
- Benchmark Percents
- Equivalent Ratios

Academic Terms:

## Mathematical Processes

- PS. 2 Reason abstractly and quantitatively.
- PS. 3 Construct viable arguments and critique the reasoning of others.
- PS. 5 Use appropriate tools strategically.
- PS. 7 Look for and make use of structure.

| Textbook | Digital | Manipulatives/Materials |
| :---: | :---: | :---: |
| Lesson 2-1 | - Web Sketchpad | - 10x10 grids |
| Lesson 2-2 | - Interactive Student Edition | - Bar Diagrams |
| Lesson 2-3 | - Math Replay Videos | - Fraction Bars |
| Lesson 2-4 | - eToolkit | - Foldable |
| Lesson 2-5 | - eGlossary | - Double number line |
| Lesson 2-6 | - Interactive Spiral Review | - Math Journals |
|  | - Digital Games Library | - Ratio Tables |
|  | - Flash Cards | - Dry Erase Boards |
|  |  | - Dry Erase Markers |

Unit 3-Compute with Multi-Digit Numbers and Fractions

## General Description of the Unit

| In this unit the student will divide multi-digit numbers, add and subtract multi-digit decimals, multiply multi-digit <br> decimals, divide multi-digit decimals, find reciprocals, divide whole numbers by fractions, divide fractions by fractions, <br> divide fractions by whole numbers and divide mixed numbers. |  |
| :--- | :--- |
| Priority Standards | Supporting Standards <br> 6.C.1: Apply the order of operations and properties of <br> operations (identity, inverse, commutative <br> properties of addition and multiplication, associative <br> properties of addition and multiplication, and <br> distributive property) to evaluate numerical <br> expressions with nonnegative rational numbers, <br> including those using grouping symbols, such as <br> parentheses, and involving whole number exponents. |
| $\underline{\text { 6.C.2: Divide multi-digit whole numbers fluently using a }}$ <br> standard algorithmic approach |  |
| Proficiency Scale | SeL Indicators |
| Self-Awareness |  |
| Self-Management |  |
| Social Awareness |  |

- Students will draw on their knowledge of division to build fluency with dividing multi-digit whole numbers, with both whole number quotients and by annexing zeros in the decimal place.
- Students will apply their understanding of dividing multi-digit whole numbers to solve real-world problems..
- How are operations with fractions and decimals related to operations with whole numbers?
- Can you divide four-digit dividends by two-digit divisors?
- Can you find the quotients of multi-digit whole numbers?
- Can you perform operations on multi-digit decimals?
- Can you divide whole numbers by fractions?
- Can you divide fractions by fractions?
- Can you divide with whole and mixed numbers?
- Can you extend previous understandings of numbers to the system of rational numbers?


## Key Concepts

- I can find quotients of multidigit whole numbers.
- I can perform operations on multi-digit decimals.
- I can divide whole numbers by fractions.
- I can divide fractions by fractions.
- I can divide with whole and mixed numbers.


## Assessment Vocabulary

## Math Terms:

- Dividend
- Divisor
- Quotient
- Annex Zeros
- Inverse Property of Multiplication
- Multiplicative inverse
- reciprocal
- Foldable


## Academic Terms:

|  |  |  |
| :---: | :---: | :---: |
| Mathematical Processes <br> - PS. 1 Make sense of problems and persevere in solving them. <br> - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning.. |  |  |
| Resources |  |  |
|  Textbook <br> Lesson 3-1  <br> Lesson 3-2  <br> Lesson 3-3  <br> Lesson 3-4  <br> Lesson 3-5  | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos <br> - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | Manipulatives/Materials <br> - Graph Paper <br> - Base-ten Blocks <br> - Place-value charts <br> - Flow chart for steps for dividing whole number by a fraction. <br> - Visual division models <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils |

Unit 4- Integers, Rational Numbers, and the Coordinate Plane

## General Description of the Unit

In this unit the student will use integers to represent quantities, graph integers on a number line, find opposite of integers,
find absolute values of integers, compare and order integers, graph rational numbers on a number line, find absolute values
of rational numbers, compare and order rational numbers, graph points in the coordinate plane, reflect points in the coordinate plane and find distance between points in the coordinate plane.

| Priority Standards |
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| - |
| 6.NS.2: Understand a rational number as a point on the <br> number line. Extend number line diagrams and <br> coordi:nate axes familiar from previous grades to <br> represent points on the line and in the plane with negative <br> number coordinates. |
| -6.NS.4: Understand ordering and absolute value of rational <br> numbers. | numbers.

## Supporting Standards

- 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.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 first coordinate or the same second coordinate.


## SEL Indicators

Self-Awareness

Self-Management

|  |  | Relationship Skills <br> Responsible Decision-Making |
| :---: | :---: | :---: |
| Conceptual Understandings <br> - Students will draw on their know lines to begin to develop unders <br> - Students will use this understan with writing integers, explaining in a given situation, and graphing horizontal and vertical number | ledge of number anding of integers. ing to build fluency the meaning of zero sets of integers on nes. | Essential Questions <br> - How are integers and rational numbers related to the coordinate plane? <br> - How can you graph integers on a number line to represent quantities? <br> - How can you find the opposites of integers and use opposites to understand absolute value? <br> - Can you compare and order integers on a number line? <br> - Can you reason rational numbers using a number line? <br> - Can you identify ordered pairs, points and quadrants and graph ordered pairs on the coordinate plane? <br> - Can you graph reflections of points within the coordinate plane? <br> - How can you use absolute value to find the distance between points on the coordinate plane? <br> - How can you solve problems involving adding integers and rational numbers? |
| Key Concepts <br> - I can use integers on a number line to represent quantities. | Related Concepts <br> - | Assessment Vocabulary Math Terms: <br> - Integer |

- I can find the opposites of integers and use opposites to understand absolute value.
- I can compare and order integers using a number line.
- I can reason about rational numbers using a numberline.
- I can identify ordered pairs, points, and quadrants and graph ordered pairs on the coordinate plane.
- I can graph reflections of points within the coordinate plane.
- I can use absolute value to find the distance between points on the coordinate plane.
- Negative Integer
- Positive Integer
- Absolute Value
- Opposite
- Rational Numbers
- Quadrants
- Reflection
- Coordinate Plane


## Academic Terms:

- Unchanging
- Universal
- Compare/comparison
- Decrease
- Increase
- Similarities
- Differences


## Mathematical Processes

- PS. 1 Make sense of problems and persevere in solving them.
- PS. 2 Reason abstractly and quantitatively.
- PS. 3 Construct viable arguments and critique the reasoning of others.
- PS. 4 Model with mathematics.
- PS. 5 Use appropriate tools strategically.
- PS.6. Attend to precision.
- PS. 7 Look for and make use of structure.
- PS. 8 Look for and express regularity in repeated reasoning.

| Resources |  |  |
| :---: | :---: | :---: |
|   <br> Lesson 4-1  <br> Lestbon 4-2  <br> Lesson 4-3  <br> Lesson 4-4  <br> Lesson 4-5  <br> Lesson 4-6  <br> Lesson 4-7  | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos <br> - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils <br> - Foldable <br> - Number Line <br> - Thermometer <br> - Integer Sets <br> - Blank Coordinate Grid (4 quadrant) <br> - Ruler <br> - Math Journal |

## Unit 5- Numerical and Algebraic Expressions

## General Description of the Unit

In this unit students will write products as powers, evaluate powers, evaluate numerical expressions, writing numerical expressions, write algebraic expressions, evaluate algebraic expressions, find the greatest common factor of two whole numbers, find the least common multiple of two whole numbers, use the Distributive Property, use the greatest common factor to factor numerical expressions, identify equivalent expressions, and simplify expressions by combining like terms.

| Priority Standards <br> 6.C.5: Evaluate positive rational numbers with whole number exponents. | Supporting Standards <br> - 6.NS.6: Identify and explain prime and composite numbers. <br> - 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. |
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| Proficiency Scales | SEL Indicators |
|  | Self-Awareness |
|  | Self-Management |
|  | Social Awareness |
|  | Relationship Skills |
|  | Responsible Decision-Making |
| Conceptual Understandings | Essential Questions |
| - Students will draw on their knowledge of products to begin to develop understanding of powers and exponents. | - How can we communicate algebraic relationships with mathematics symbols? <br> - Can you write and evaluate powers? |

- Students will use this understanding to build fluency with writing products involving rational numbers as powers using whole number exponents.
- Students will build fluency with writing powers as products with whole number, fractional, and decimal factors.
- Students will apply their understanding powers and exponents to solve real world problems.
- Can you write and evaluate numerical expressions?
- Can you write algebraic expressions?
- Can you evaluate algebraic expressions?
- How can you solve problems by finding the greatest common factor and least common multiple of two whole numbers?
- Can you use the Distributive Property?
- Can you identify and generate equivalent algebraic expressions?


## Key Concepts

- I can write and evaluate powers.
- I can write and evaluate numerical expressions
- I can write algebraic expressions
- I can evaluate algebraic expressions.
- I can solve problems by finding the greatest common factor and least common multiple of two whole numbers.
- I can use the Distributive Property to expand and factor expressions.
- I can identify and generate equivalent algebraic expressions.


## Related Concepts

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## Assessment Vocabulary

 Math Terms:- Base
- Exponent
- Power
- Evaluate
- Numerical Expression
- Order of Operations
- Algebra
- Algebraic Expression
- Coefficient
- Constant
- Defining the Variable
- Like Terms
- Term
- Evaluate
- Common Factor
- Greatest Common Factor
- Least Common Multiple

| $\bullet$ |  | - Distributive Property <br> - Factoring the Expression <br> - Associative Property <br> - Commutative Property <br> - Equivalent Expressions <br> - Identify Property <br> Academic Terms: |
| :---: | :---: | :---: |
| Mathematical Processes <br> - PS. 1 Make sense of problems and persevere in solving them. <br> - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning. |  |  |
| Resources |  |  |
|  Textbook <br> Lesson 5-1  <br> Lesson 5-2  <br> Lesson 5-3  | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils |


| Lesson 5-4 <br> Lesson 5-5 <br> Lesson 5-6 <br> Lesson 5-7 | - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | - Order of Operations Anchor Chart <br> - Common Factor Chart <br> - Paper clips <br> - Foldable <br> - Math Journal |
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Unit 6- Equations and Inequalities

## General Description of the Unit

In this unit students will solve equations using substitution, write and solve one-step addition equations, write and solve one-step subtraction equations, write and solve one-step multiplication equations, write and solve one-step division equations, write and graph inequalities, and find solutions of inequalities.

| Priority Standards <br> 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. | Supporting Standards <br> - 6.AF.3: Define multiple variables when writing expressions to represent real world and other mathematical problems, and evaluate them for given values. <br> - 6.AF.5: Solve equations of the form $x+p=q$ and $p x=q$ fluently for cases in which $p, q$, and $x$ are all nonnegative rational numbers. Represent real world problems using equations of these forms and solve such problems |
| :---: | :---: |
| Proficiency Scales$\text { 6.AF. } 4$ | SEL Indicators |
|  | Self-Awareness |
|  | Self-Management |
|  | Social Awareness |
|  | Relationship Skills |
|  | Responsible Decision-Making |
| Conceptual Understandings | Essential Questions |
|  | - How are the solutions of equations and inequalities different? |

- Students draw on their knowledge of equivalent expressions to begin to develop understanding of one-step equations.
- Students will come to understand that solving an algebraic equation means finding a value for the variable that results in a true sentence, and they build fluency with using the substitution method to solve one-step equations.
- Students will apply this understanding to solve real-world problems.
- How can you use substitution to determine whether a given number in a specified set makes an equation true?
- How can you use Subtraction Property of Equality to write and solve one-step addition equations?
- How can you use the Addition Property of Equality to write and solve one-step subtraction equations?
- How can you use the Division Property of Equality to write and solve one-step multiplication equations?
- How can you use Multiplication Property of Equality to write and solve one-step division equations?
- Can you write, solve and graph inequalities?


## Key Concepts

- I can use substitution to solve one-step equations
- I can use the Subtraction Property of Equality to write and solve one-step addition equations.
- I can use the Addition Property of Equality to write and solve one-step subtraction equations.
- I can use the Division Property of Equality to write and solve one-step multiplication equations.


## Related Concepts

Assessment Vocabulary Math Terms:

- equals sign
- equation
- guess, check, and revise strategy
- inverse operations
- Subtraction Property of Equality
- Addition Property of Equality
- Division Property of Equality
- Multiplication Property of Equality
- inequality


## Academic Terms:

- analyze

| - I can use the Multiplication Property of Equality to write and solve one-step division equations. <br> - I can write, solve, and graph inequalities. |  | - revise <br> - check <br> - guess/estimate <br> - Compare/Contrast |
| :---: | :---: | :---: |
| Mathematical Processes <br> - PS. 1 Make sense of problems and persevere in solving them. <br> - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning. |  |  |
|  |  |  |
| Resources |  |  |
|  Textbook <br> Lesson 6-1  <br> Lesson 6-2  | Digital <br> - Web Sketchpad <br> - Interactive Student Edition | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers |


| Lesson 6-3 <br> Lesson 6-4 <br> Lesson 6-5 <br> Lesson 6-6 | - Math Replay Videos <br> - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | - Colored Pencils <br> - Poster of different ways to represent the 4 math operations. <br> - Foldable <br> - Bar Diagrams <br> - Math Journal |
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Unit 7- Relationships Between Two Variables

## General Description of the Unit

In this unit students will find dependent variable values in a table, find independent variable in a table, write one-step and two-step equations to represent relationships between variables, graph relationships from equations form graph, and represent relationships multiple ways.

| Priority Standards <br> - 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. | Supporting Standards <br> - 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) <br> - 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. |
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| Proficiency Scales | SEL Indicators |
|  | Self-Awareness |
| N/A | Self-Management |
|  | Social Awareness |
|  | Relationship Skills |
|  | Responsible Decision-Making |
| Conceptual Understandings | Essential Questions |
| - Students will draw on their knowledge of simplifying expressions to develop understanding of relationships between two variables. Students will | - What are the ways in which a relationship between two variables can be displayed? |

identify independent and dependent variables and use a table to build fluency with finding the variable values, given either the independent variable or the dependent variable.

- Students will apply this understanding to solve multi-step, real-world problems.


## Key Concepts

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Related Concepts
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- How can you identify and use independent and dependent variables in relationships?
- Can you write equations to represent relationships?
- Can you write equations and graph lines to represent relationships?
- How can you use tables, equations and graphs to represent relationships?
- How can you use tables and graphs to determine if a relationship between two quantities is proportional?

Assessment Vocabulary

## Mathematical Processes

- PS. 1 Make sense of problems and persevere in solving them.
- PS. 2 Reason abstractly and quantitatively.
- PS. 3 Construct viable arguments and critique the reasoning of others.
- PS. 4 Model with mathematics.
- PS. 5 Use appropriate tools strategically.
- PS.6. Attend to precision.
- PS. 7 Look for and make use of structure.
- PS. 8 Look for and express regularity in repeated reasoning.

| Resources |  |  |
| :---: | :---: | :---: |
| Textbook <br> Lesson 7-1 <br> Lesson 7-2 <br> Lesson 7-3 <br> Lesson 7-4 | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos <br> - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils <br> - Foldable <br> - Math Journal |

Unit 8- Area

## General Description of the Unit

In this unit students will find areas of parallelograms, find missing dimensions of parallelograms, find areas of triangles, find missing dimensions of triangle, find area of trapezoids, find missing dimensions of trapezoids, find area of regular polygons, find perimeters and areas of polygons on the coordinate plane. Students will explore the relationship among the angles of a triangle, find the missing angle measures in triangles, and conclude that the interior angles of a triangle have the
sum of $180^{\circ}$. Students will explore the relationship among the angles of a polygon, find the missing angle measures in polygon and conclude that the interior angles of a quadrilateral have a sum of $360^{\circ}$.

## Priority Standards

- 6.GM.4 Find the area of complex shapes composed of polygons by composing or decomposing into simple shapes; apply this technique to solve realworld and other mathematical problems.
- 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.


## Supporting Standards

- 6.GM. 2 Know that the sum of the interior angles of any triangle is $180^{\circ}$ and that the sum of the interior angles of any quadrilateral is 360 . Use this information to solve real-world and mathematical problems.
- 6.AF. 1 Evaluate expressions for specific values of their variables, including expressions with wholenumber exponents and those that arise from formulas used in geometry and other real-world problems.
- 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.


## Proficiency Scales

SEL Indicators
6.GM. 4



|  | $\bullet$ Flash Cards |  |  |
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|  | $\underline{I}$ |  |  |

Unit 9- Volume and Surface Area

## General Description of the Unit

In this unit the student will be able to find volume of rectangular prisms, triangular prisms, and pyramids, find missing dimensions of rectangular prisms, triangular prisms, and pyramids, and, make nets to represent rectangular prisms, triangular prisms, and pyramids.

- 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 $V=l w h$ and $V=B h$ to find volumes of right 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.AF. 3 Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.


## SEL Indicators

Self-Awareness

Self-Management

Social Awareness

|  |  | Relationship Skills <br> Responsible Decision-Making |  |
| :---: | :---: | :---: | :---: |
| Conceptual Understandings <br> - Students will draw on their know of polygons to develop understa rectangular prisms. <br> - Students will learn how to use cu formula to build fluency with fin rectangular prisms with fraction finding a missing dimension give <br> - Students will apply their unders solve multi-step, real-world prob | ledge of attributes ding of volume of <br> bes and the volume ing the volume of edge lengths, and the volume. anding of volume to ems. | Essential Questions <br> - How can you describe the size of a three-dimensional figure? <br> - Can you find and use the volume of rectangular prisms? <br> - How can you make nets and use them to find the surface area of rectangular prisms? <br> - How can you make nets and use them to find the surface area of triangular prisms? <br> - Can you make nets and use them to find the surface area of pyramids? |  |
| Key Concepts <br> - I can find and use the volume of rectangular prisms <br> - I can make nets and find surface area of rectangular prisms. <br> - I can make nets and find surface area of triangular prisms. <br> - I can make nets and find surface area of pyramids | Related Concepts <br> - N/A |  | Assessment Vocabulary <br> Math Terms: <br> - cubic units <br> - prism <br> - rectangular prism <br> - three-dimensional figure <br> - volume <br> - net <br> - surface area <br> - triangular prism <br> - lateral face |


|  |  | - pyramid <br> - slant height <br> Academic Terms: <br> - explain <br> - facilitate <br> - engage |
| :---: | :---: | :---: |
| Mathematical Processes <br> - PS. 1 Make sense of problems and persevere in solving them. <br> - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning. |  |  |
| Resources |  |  |
|  Textbook <br> Lesson 9-1  <br> Lesson 9-2  <br> Lesson 9-3  <br> Lesson 9-4  <br>   | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos <br> - eToolkit <br> - eGlossary | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils <br> - Three-dimensional shapes <br> - Foldable |



Unit 10- Statistical Measures of Displays

## General Description of the Unit

In this unit the student will identify statistical questions, display data in a table, construct dot plots, construct histograms, find the mean and median of a data set find the range and interquartile range of a data set, construct box plots, find the mean absolute deviation of a data set, identifying outliers of a data set and identify their effect on the measures of center and variation and interpret the distribution of a data set.

## Priority Standards

- 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.


## Supporting Standards

- 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. 2 Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.
- 6.DS. 3 Formulate statistical questions; collect and organize the data (e.g., using technology); display and interpret the data with graphical representations (e.g., using technology).

| Proficiency Scales $\text { 6.DS. } 4$ |  | $\underline{\mathbf{S}}$ |  |
| :---: | :---: | :---: | :---: |
| Conceptual Understandings <br> - Students will draw on their know representing and interpreting develop an understanding of st <br> - Students come to understand th questions anticipate a variety of data. They also learn how to or in a table and analyze the results. | ledge of ta to begin to istical measures. t statistical answers based on anize collected data | $\bullet$ |  |
| Key Concepts <br> - I can identify and use statistical questions. <br> - I can construct dot plots and histograms using collected data. <br> - I can understand and apply different measures of center. <br> - I can understand interquartile range and construct box plots <br> - I can understand mean absolute deviation. <br> - I can understand outliers and their effect on measures of center. <br> - I can interpret dot plots, histograms, and box plots |  |  |  |


|  | - distribution <br> - gap <br> - peak <br> - symmetric distribution <br> Academic Terms: <br> - analyzing <br> - interpreting <br> - presenting <br> - displayed <br> - representation <br> - compare/contrast <br> - least/greatest <br> - organize <br> - strategies |
| :---: | :---: |
| Mathematical Processes <br> - PS. 1 Make sense of problems and persevere in solving them. <br> - PS. 2 Reason abstractly and quantitatively. <br> - PS. 3 Construct viable arguments and critique the reasoning of others. <br> - PS. 4 Model with mathematics. <br> - PS. 5 Use appropriate tools strategically. <br> - PS.6. Attend to precision. <br> - PS. 7 Look for and make use of structure. <br> - PS. 8 Look for and express regularity in repeated reasoning. |  |


| Resources |  |  |
| :---: | :---: | :---: |
|  Textbook <br> Lesson 10-1  <br> Lesson 10-2  <br> Lesson 10-3  <br> Lesson 10-4  <br> Lesson 10-5  <br> Lesson 10-6  <br> Lesson 10-7  | Digital <br> - Web Sketchpad <br> - Interactive Student Edition <br> - Math Replay Videos <br> - eToolkit <br> - eGlossary <br> - Interactive Spiral Review <br> - Digital Games Library <br> - Flash Cards | Manipulatives/Materials <br> - Dry Erase Boards <br> - Dry Erase Markers <br> - Colored Pencils <br> - Blank dot plots <br> - Blank histograms <br> - Foldables <br> - Math Journal |

