Math - Grade 6		
Unit # 1	**Title:** Number Systems and Expressions	**Pacing:** 60 days

Stage 1- Desired Results

Established Goals/NJSLS Standards

The Number System 6.NS
A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
   1. 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.
B. Compute fluently with multi-digit numbers and find common factors and multiples.
   2. Fluently divide multi-digit numbers using the standard algorithm.
   3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
   4. 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.
Expressions and Equations 6.EE
A. Apply and extend previous understandings of arithmetic to algebraic expressions.
   1. Write and evaluate numerical expressions involving whole-number exponents.
   2. Write, read, and evaluate expressions in which letters stand for numbers.
      a. Write expressions that record operations with numbers and with letters standing for numbers.
      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.
      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).
   3. Apply the properties of operations to generate equivalent expressions.
   4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Enduring Understandings *Students will understand…*	**Essential Questions** *Students will consider...*
- Math is everywhere in the world around us. - Applying math concepts helps me be successful and better understand the world around me. - Multi-digit whole numbers and decimals can be computed fluently. - Any two whole numbers have a greatest common factor and least common multiple. - Any number can be expressed as its prime. - All expressions represent part of the problem without the answer. - Expressions can be simplified using properties.	- Why is the order of operations important? - How do I use algorithms in real world situations? - Why/How are factors and multiples important when solving problems? - How can I represent fraction multiplication and division using various models? - Why is it important to understand fraction multiplication and division? - How do I interpret a fraction division problem as a fraction multiplication problem? - How do I use algebraic expressions in my everyday life? - How are numerical and algebraic expressions the same? How are they different? - What key words are important to know when translating words into symbols? - Why are properties important when writing expressions?

Knowledge *Students will know…*	Academic Vocabulary	
● Prime and composite numbers ● Factors and multiples ● Multiplication and division facts ● Operations with whole numbers and decimals to two digits ● Distributive property ● Simplifying expressions ● Properties of addition and multiplication ● Real world applications	● algorithm ● numerical expression ● Power ● Exponent ● prime factorization ● order of operations ● GCF ● LCM ● Estimation ● Product ● Quotient ● Dividend	● Mixed number ● Improper fraction ● Reciprocal ● algebraic expression ● term ● coefficient ● constant ● commutative ● associative ● identity ● distributive ● Divisor ● Fraction

Skills
Students will be able to…

● Fluently add, subtract, multiply, and divide whole numbers and decimals.
● Use/Apply the standard algorithm for each operation.
● Write and evaluate numerical expressions using exponents and order of operations.
● Calculate the prime factorization of a number
● Find the greatest common factor and least common multiple of two given numbers
● Use various visual models to interpret and solve fraction multiplication and division (area and bar model, number lines).
● Multiply and divide fractions and mixed numbers using standard algorithms.
● Write reciprocals of numbers.
● Create a story context to fraction multiplication and division problems.
● Describe the relationship between fraction multiplication and division.
● Interpret and solve real life problems using fraction multiplication and division.
● Identify parts of an algebraic expression
● Evaluate algebraic expressions given a value for the variables
● Simplify expressions using exponents
● Translate phrases and word problems into algebraic expressions
● Identify the commutative, associative, identity, and distributive properties
● Use properties to write and simplify expressions
● Solve real world problems by applying properties and simplifying expressions

21ST Century/ Interdisciplinary Themes	21st Century Skills
Global Awareness **Financial, Business, & Entrepreneurial Literacy** Civic Literacy Environmental Literacy Health Literacy	**Creativity & Innovation** **Communication & Collaboration** Media Literacy **Critical Thinking & Problem Solving** Information Literacy **Information, Communication, & Technology** **Life & Career Skills**

Stage 2- Assessment Evidence

Formative Assessments	Student Self-Assessment	Common Assessments

● Mid-chapter quizzes
● Kahoot
● Classroom observations
● Study Island
	● Exit Ticket
	● Check-Ins
	● Mini-Assessments
	● Journal reflections
		● Big Ideas Benchmarks
		● Big Ideas chapter tests
		● Performance Tasks using Big Ideas rubric
		   ○ 6.EE Task
		   ○ 6.NS Task

Stage 3- Learning Plan

Learning Activities

- Warm-up worksheet
- Partner activity (think-pair-share)
- Lesson notes
- Khan Academy video or Big Ideas video
- Independent work
- Wrap-up worksheet

Resources/Instructional Materials
(articles, novels, websites, books, magazines, art, media)

- Big Ideas textbook (chapters 1, 2, and 3) and website (bigideas.com)

Technology Resources

● Big Ideas Online	● Kahoot!	● IXL
● Study Island	● Kahn Academy	● Google Apps

Accommodations & Modifications
for Special Ed., At Risk, ELL, & Gifted Students

● Allow oral responses ● Allow verbalization before writing ● Use audio materials when necessary ● Modify homework assignments ● Read tests aloud ● Provide math manipulatives as necessary ● Restate, reword, clarify directions ● Re-teach concepts using small groups ● Provide educational "breaks" as necessary ● Chunking Content ● Calculator	● Use mnemonic devices ● Provide a cueing system ● Untimed and/or extended test taking time ● Shorten assignments to focus on mastery concept ● Acronyms ● Graphic Organizers ● Notes Provided ● Check agenda book for parent(s) communication ● Read directions aloud	● Assignment, Project, and Assessment Modification Based on Individual Student Needs ● Speech to Text/Text to Speech Features in Google Apps ● Technology assisted instruction ● Preferential seating utilized ● Redirect student(s) as necessary ● Student choice for project or approach to assignment ● Inquiry-Based Learning

Math - Grade 6		
Unit # 2	**Title:** Statistics and Probability	**Pacing**:30 days

Stage 1- Desired Results

Established Goals/NJSLS Standards

Statistics and Probability 6.SP

A. Develop understanding of statistical variability.
1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
2. 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.
3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

B. Summarize and describe distributions.
4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
5. Summarize numerical data sets in relation to their context, such as by:
   a. Reporting the number of observations.
   b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
   c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
   d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Enduring Understandings *Students will understand…*	**Essential Questions** *Students will consider...*
● Math is everywhere in the world around us. ● Applying math concepts helps me be successful and better understand the world around me. ● Statistical questions can be interpreted using measures of center and variation. ● Data can be displayed in a variety of ways. ● I can interpret and make conclusions based on various data displays and distribution of data.	● How does understanding math help me understand the world around me? ● Why do I need math? ● How do I use statistics and data in my everyday life? ● What is the relationship between measures of center and how can I use them to ● interpret data? ● How do data displays help me make conclusions about the data set? ● How can I describe the shape of the distribution of a data set?
Knowledge *Students will know…*	**Academic Vocabulary**
● line plots ● ordering fractions and decimals from least to greatest ● analyzing graphs ● symmetry ● plotting ordered pairs in the first quadrant ● percent ● interquartile range ● mean absolute deviation ● shape of distribution	● statistics ● measure of center ● statistical question ● measure of variation ● dot plot ● mean absolute deviation ● mean ● stem-and-leaf plot ● outlier ● histogram ● median ● frequency table ● mode ● skewed ● range ● box-and-whisker plot ● interquartile range ● shape of distribution ● quartile

Skills
Students will be able to…

- Analyze, use, and create dot plots to answer statistical questions
- Calculate mean, median, mode, range, interquartile range, and mean absolute deviation
- Describe the relationship between mean and outliers
- Identify which measure of center best describes a data set
- Construct and interpret stem- and-leaf plots, histograms, and box-and-whisker plots
- Make conclusions based on data displays
- Describe and compare shapes of distribution

21ST Century/ Interdisciplinary Themes	21st Century Skills
Global Awareness **Financial, Business, & Entrepreneurial Literacy** Civic Literacy Environmental Literacy Health Literacy	**Creativity & Innovation** **Communication & Collaboration** Media Literacy **Critical Thinking & Problem Solving** Information Literacy **Information, Communication, & Technology** **Life & Career Skills**

Stage 2- Assessment Evidence

Formative Assessments	Student Self-Assessment	Common Assessments

- Mid-chapter quizzes
- Kahoot
- Classroom observations
- Study Island
	- Exit Ticket
	- Check-Ins
	- Mini-Assessments
	- Journal reflections
		- Big Ideas chapter tests
		- Big Ideas Benchmark
		- Performance Tasks using Big Ideas rubric
		  ○ 6.SP.2 Task
		  ○ 6.SP.4 Tasks

Stage 3- Learning Plan

Suggested Learning Activities

- Warm-up worksheet
- Partner activity (think-pair-share)
- Lesson notes
- Khan Academy video or Big Ideas video
- Independent work
- Wrap-up worksheet

Resources/Instructional Materials
(articles, novels, websites, books, magazines, art, media)

- Big Ideas textbook (chapters 9 and 10) and website (bigideas.com)

Technology Resources		
● Big Ideas Online ● Study Island	● Kahoot! ● Kahn Academy	● IXL ● Google Apps

Accommodations & Modifications *for Special Ed., At Risk, ELL, & Gifted Students*		
● Allow oral responses ● Allow verbalization before writing ● Use audio materials when necessary ● Modify homework assignments ● Read tests aloud ● Provide math manipulatives as necessary ● Restate, reword, clarify directions ● Re-teach concepts using small groups ● Provide educational "breaks" as necessary ● Chunking Content ● Calculator	● Use mnemonic devices ● Provide a cueing system ● Untimed and/or extended test taking time ● Shorten assignments to focus on mastery concept ● Acronyms ● Graphic Organizers ● Notes Provided ● Check agenda book for parent(s) communication ● Read directions aloud	● Assignment, Project, and Assessment Modification Based on Individual Student Needs ● Speech to Text/Text to Speech Features in Google Apps ● Technology assisted instruction ● Preferential seating utilized ● Redirect student(s) as necessary ● Student choice for project or approach to assignment ● Inquiry-Based Learning

Adapted from: Wiggins, Grant and J. McTighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development

| **Unit #** 3 | **Title:** Ratios and Rates | **Pacing**: 20 days |

Stage 1- Desired Results

Established Goals/NJSLS Standards

Ratios and Proportional Relationships 6.RP

A. Understand ratio concepts and use ratio reasoning to solve problems.
1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
2. Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠0, and use rate language in the context of a ratio relationship.
3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
   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.
   b. Solve unit rate problems including those involving unit pricing and constant speed.
   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.
   d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Enduring Understandings *Students will understand…*	**Essential Questions** *Students will consider...*
- Math is everywhere in the world around us, especially ratios and percents. - Applying math concepts helps me be successful and better understand the world around me. - Ratios can be used to represent, find, and compare two different quantities. - There are various ways I can calculate percents.	- How does understanding math help me understand the world around me? - Why do I need math? - How do I use ratios and percents in my everyday life? - How can you represent a relationship between two quantities? - How can you find two ratios that describe the same relationship? - How are ratios, rates, unit rates, and percents the same? How are they different? - What's the best method for comparing ratios, a table or graph? - What are the different strategies for calculating percent?

Knowledge *Students will know…*	**Academic Vocabulary**
- function tables - patterns - multiplying and dividing fractions and decimals - equivalent fractions - converting measures within the customary or metric system - converting fractions/decimals/percents - ratio tables - tape diagrams	- ratio - rate - unit rate - equivalent ratio - ratio table - tape diagram - double number line - percent

Skills
Students will be able to…
● Identify ratios, rates, and unit rates and understand their similarities and differences
● Use ratios to describe the relationship between two quantities
● Write ratios three different ways
● Represent ratios using a diagram, table, and double number line
● Construct and use ratio tables to find equivalent ratios
● Write and solve unit rates
● Compare ratios by using tables and graphs
● Calculate percent of a number using various strategies (mental math, bar model, calculator, and conversions)
● Calculate the whole when given the part and the percent
● Solve real world problems using ratios and percents

21ST Century/ Interdisciplinary Themes	21st Century Skills
Global Awareness **Financial, Business, & Entrepreneurial Literacy** Civic Literacy Environmental Literacy Health Literacy	**Creativity & Innovation** **Communication & Collaboration** Media Literacy **Critical Thinking & Problem Solving** Information Literacy **Information, Communication, & Technology** **Life & Career Skills**

Stage 2- Assessment Evidence

Formative Assessments	*Student Self-Assessment*	*Common Assessments*
● Mid-chapter quizzes ● Kahoot ● Classroom observations ● Study Island	● Exit Ticket ● Check-Ins ● Mini-Assessments ● Journal reflections	● Big Ideas chapter tests ● Performance Task using Big Ideas rubric ● 6.RP Task ● Big Ideas Benchmarks

Stage 3- Learning Plan

Suggested Learning Activities

- Warm-up worksheet
- Partner activity (think-pair-share)
- Lesson notes
- Khan Academy video or Big Ideas video
- Independent work
- Wrap-up worksheet

Resources/Instructional Materials
(articles, novels, websites, books, magazines, art, media)

- Big Ideas textbook (chapter 5) and website (bigideas.com)

Technology Resources

- Big Ideas Online
- Study Island
- Kahoot!
- Kahn Academy
- IXL
- Google Apps

Accommodations & Modifications
for Special Ed., At Risk, ELL, & Gifted Students

- Allow oral responses
- Allow verbalization before writing
- Use audio materials when necessary
- Modify homework assignments
- Read tests aloud
- Provide math manipulatives as necessary
- Restate, reword, clarify directions
- Re-teach concepts using small groups
- Provide educational "breaks" as necessary
- Chunking Content
- Calculator

- Use mnemonic devices
- Provide a cueing system
- Untimed and/or extended test taking time
- Shorten assignments to focus on mastery concept
- Acronyms
- Graphic Organizers
- Notes Provided
- Check agenda book for parent(s) communication
- Read directions aloud

- Assignment, Project, and Assessment Modification Based on Individual Student Needs
- Speech to Text/Text to Speech Features in Google Apps
- Technology assisted instruction
- Preferential seating utilized
- Redirect student(s) as necessary
- Student choice for project or approach to assignment
- Inquiry-Based Learning

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Math - Grade 6		
Unit # 4	**Title:** Rational Numbers and Equations	**Pacing**: 30 days

Stage 1- Desired Results

Established Goals/NJSLS Standards

The Number System 6.NS

C. Apply and extend previous understandings of numbers to the system of rational numbers.

5. 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. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
   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.
   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.
   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.
7. Understand ordering and absolute value of rational numbers.
   a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
   b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.
   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.
   d. Distinguish comparisons of absolute value from statements about order.
8. 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.

Expressions and Equations 6.EE

B. Reason about and solve one-variable equations and inequalities.

5. Understand solving an equation or inequality as a process of answering a 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. 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.
7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

C. Represent and analyze quantitative relationships between dependent and independent variables.

9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Enduring Understandings _Students will understand…_	**Essential Questions** _Students will consider..._
- Math is everywhere in the world around us, especially integers. - Applying math concepts helps me be successful and better understand the world around me. - All equations have a solution that can be found using inverse operations. - All inequalities have a solution set that can be found using inverse operations. - There is a relationship between two variables in an equation that can be represented in a table and graph. - Integers and rational numbers can be illustrated on a number line and this can be used to solve problems. - Positive and negative fractions and decimals are interchangeable. - Any integer has an absolute value. - Any integer can be plotted on a coordinate plane.	- How does understanding math help me understand the world around me? Why do I need math? - How do I use equations and inequalities in my everyday life? - What keywords are important to help me translate words into symbols? - How will inverse operations help me solve equations and inequalities? - How can I find the relationship between two variables and visually represent it? - How do I use integers and rational numbers in my everyday life? - How do I interpret integers and rational numbers on a number line? - How can I write write a rational number as a fraction? As a decimal? - What is absolute value and why is it important? - How are integers used in a coordinate plane?

Knowledge _Students will know…_	**Academic Vocabulary**
- writing and evaluating algebraic expressions - order of operations - number lines - comparing fractions and decimals - place value - comparing and ordering - fractions and decimals - graphing ordered pairs in the first quadrant - converting positive fractions and decimals - long division	- equation - inverse operation - solution - substitution - independent and dependent variables - positive number - negative number - integer - rational number - terminating decimal - repeating decimal - absolute value - opposite - coordinate plane - origin - quadrant

Skills _Students will be able to…_
- Translate word sentences into equations and inequalities   - Represent real life situations using equations and inequalities   - Solve one step equations and inequalities using inverse operations   - Use substitution to check answers   - Identify independent and dependent variables   - Write equations in two variables   - Use tables and graphs to analyze the relationship between two variables   - Graph the solution set of inequalities on a number line   - Understand integers and rational numbers and use them to describe real life situations   - Graph integers and rational numbers on a number line   - Utilize a number line to compare and order integers and rational numbers

Skills Continued
Students will be able to…

- Convert positive and negative fractions and decimals
- Identify and write terminating and repeating decimals using long division
- Determine the absolute value of a number
- Compare numbers using absolute value
- Describe the location of ordered pairs in a coordinate plane
- Plot ordered pairs in a coordinate plane
- Find distances between points in the coordinate plane

21ST Century/ Interdisciplinary Themes	21st Century Skills
Global Awareness **Financial, Business, & Entrepreneurial Literacy** Civic Literacy Environmental Literacy Health Literacy	**Creativity & Innovation** **Communication & Collaboration** Media Literacy **Critical Thinking & Problem Solving** Information Literacy **Information, Communication, & Technology** **Life & Career Skills**

Stage 2- Assessment Evidence

Formative Assessments	Student Self-Assessment	Common Assessments

- Mid-chapter quizzes
- Kahoot
- Classroom observations
- Study Island
	- Exit Ticket
	- Check-Ins
	- Mini-Assessments
	- Journal reflections
		- Big Ideas chapter tests
		- Big Ideas Benchmarks
		- Performance Tasks using Big Ideas rubric
		    ○ 6.NS Task
		    ○ 6.EE Task

Stage 3- Learning Plan

Suggested Learning Activities

- Warm-up worksheet
- Partner activity (think-pair-share)
- Lesson notes
- Khan Academy video or Big Ideas video
- Independent work
- Wrap-up worksheet

Resources/Instructional Materials
(articles, novels, websites, books, magazines, art, media)

- Big Ideas textbook (chapters 6 and 7) and website (bigideas.com)

Technology Resources		
● Big Ideas Online	● Kahoot!	● IXL
● Study Island	● Kahn Academy	● Google Apps

Accommodations & Modifications
for Special Ed., At Risk, ELL, & Gifted Students

● Allow oral responses	● Use mnemonic devices	● Assignment, Project, and Assessment Modification Based on Individual Student Needs
● Allow verbalization before writing	● Provide a cueing system	
● Use audio materials when necessary	● Untimed and/or extended test taking time	
● Modify homework assignments	● Shorten assignments to focus on mastery concept	● Speech to Text/Text to Speech Features in Google Apps
● Read tests aloud		
● Provide math manipulatives as necessary	● Acronyms	● Technology assisted instruction
● Restate, reword, clarify directions	● Graphic Organizers	● Preferential seating utilized
● Re-teach concepts using small groups	● Notes Provided	● Redirect student(s) as necessary
● Provide educational "breaks" as necessary	● Check agenda book for parent(s) communication	● Student choice for project or approach to assignment
● Chunking Content		
● Calculator	● Read directions aloud	● Inquiry-Based Learning

Adapted from: Wiggins, Grant and J. McTighe. (1998). _Understanding by Design_, Association for Supervision and Curriculum Development

Math - Grade 6		
Unit # 5	**Title:** Geometry	**Pacing:** 40 days

Stage 1- Desired Results

Established Goals/NJSLS Standards

Geometry 6.G

A. Solve real-world and mathematical problems involving area, surface area, and volume.
1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, 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 in the context of solving real-world and mathematical problems.
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 in the context of solving real-world and mathematical problems.
4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Enduring Understandings *Students will understand…*	**Essential Questions** *Students will consider...*
● Math is everywhere in the world around us, especially shapes. ● Applying math concepts helps me be successful and better understand the world around me. ● I can use what I know about basic shapes to find the area of more complex shapes. ● Formulas can be used to calculate area, surface area, and volume.	● How does understanding math help me understand the world around me? ● Why do I need math? ● How do I use area, perimeter, surface area, and volume in my everyday life? ● How can I derive formulas for area of a parallelogram, triangle, and trapezoid? ● How do formulas help us solve problems? ● How can I use ordered pairs to calculate the area of a polygon in a coordinate plane? ● How are 2D and 3D shapes similar? How are they different?

Knowledge *Students will know…*	**Academic Vocabulary**
● composite shapes ● area ● perimeter ● surface area ● nets	● Parallelogram ● Triangle ● Trapezoid ● Composite figure ● Compose/decompose ● Ordered pair ● Coordinate plane ● Polyhedron ● Face ● Edge ● Vertex ● Net ● Surface area

Skills
Students will be able to…

- Develop formula for area of a parallelogram, triangle, and a trapezoid using knowledge of other shapes
- Calculate area of parallelograms, triangles, and trapezoids using derived formulas
- Calculate the area of composite figures by decomposing them into other shapes
- Draw polygons in a coordinate plane
- Find distances in a coordinate plane to help calculate area of a polygon
- Identify the number of faces, edges, and vertices in a three dimensional figure
- Identify polyhedra based on characteristics
- Construct nets of three dimensional figures
- Calculate surface area of rectangular prisms, triangular prisms, square pyramids, and triangular pyramids
- Calculate the volume of rectangular prisms
- Solve real world problems about area, perimeter, surface area, and volume

21ST Century/ Interdisciplinary Themes	21st Century Skills
Global Awareness **Financial, Business, & Entrepreneurial Literacy** Civic Literacy Environmental Literacy Health Literacy	**Creativity & Innovation** **Communication & Collaboration** Media Literacy **Critical Thinking & Problem Solving** Information Literacy **Information, Communication, & Technology** **Life & Career Skills**

Stage 2- Assessment Evidence

Formative Assessments	Student Self-Assessment	Common Assessments
- Mid-chapter quizzes - Kahoot - Classroom observations - Study Island	- Exit Ticket - Check-Ins - Mini-Assessments - Journal reflections	- Big Ideas chapter tests - Big Ideas Benchmarks - Performance Task using Big Ideas rubric ○ 6.G Task

Stage 3- Learning Plan

Learning Activities

- Warm-up worksheet
- Partner activity (think-pair-share)
- Lesson notes
- Khan Academy video or Big Ideas video
- Independent work
- Wrap-up worksheet

Resources/Instructional Materials
(articles, novels, websites, books, magazines, art, media)

- Big Ideas textbook (chapters 6 and 7) and website (bigideas.com)

Technology Resources		
● Big Ideas Online ● Study Island	● Kahoot! ● Kahn Academy	● IXL ● Google Apps

Accommodations & Modifications for Special Ed., At Risk, ELL, & Gifted Students		
● Allow oral responses ● Allow verbalization before writing ● Use audio materials when necessary ● Modify homework assignments ● Read tests aloud ● Provide math manipulatives as necessary ● Restate, reword, clarify directions ● Re-teach concepts using small groups ● Provide educational "breaks" as necessary ● Chunking Content ● Calculator	● Use mnemonic devices ● Provide a cueing system ● Untimed and/or extended test taking time ● Shorten assignments to focus on mastery concept ● Acronyms ● Graphic Organizers ● Notes Provided ● Check agenda book for parent(s) communication ● Read directions aloud	● Assignment, Project, and Assessment Modification Based on Individual Student Needs ● Speech to Text/Text to Speech Features in Google Apps ● Technology assisted instruction ● Preferential seating utilized ● Redirect student(s) as necessary ● Student choice for project or approach to assignment ● Inquiry-Based Learning

Adapted from: Wiggins, Grant and J. McTighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development