Instructional Calendar 6th Grade Math

International Society for Technology in Education Standards	Grade Level Technology Targets
1. **Creativity and innovation:** Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. 2. **Communication and collaboration**: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. 3. **Research and information fluency**: Students apply digital tools to gather, evaluate, and use information. 4. **Critical thinking, problem solving, and decision making**: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. 5. **Digital citizenship**: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. 6. **Technology Operations and Concepts:** Students demonstrate and sound understanding of technology concepts, systems and operations.	• **Calculator Computation** • **Use Numbers App to create graphs of all types** • **Digital tools (videos, games, interactives)** • **Architouch 3-D**

Quarter 1

Ch. 1&2

Standard 1 (Number Sense, Properties and Operations)	Standard 2 (Patterns, Functions, and Algebraic	Standard 3 (Data Analysis, Statistics, and Probability)	Standard 4 (Shape, Dimension, and Geometric Relationships)
Characteristics of Numbers (chpt. 1) Products, Factors, and Factor Pairs (chpt. 1) Using Rectangles to Multiply (chpt 2) Using Generic Rectangles (chpt 2) Generic Rectangles and the Greatest Common Factor (chpt 2) Distributive Property (chpt 2)	Describing and Extending Patterns (chpt. 1) **Multiple Representations** (chpt. 1) **Representing Comparisons** (chpt. 1)	Describing and Extending Patterns (chpt. 1) Representing Data (chpt. 1) Making Sense of a Logic Problem (chpt. 1) Dot Plots and Bar Graphs (chpt 2) Histograms and Stem-and-Leaf Plots (chpt 2)	Perimeter and Area Relationships (chpt. 1) Exploring Area (chpt 2) Square Units and Area of Rectangle (chpt 2) Area and Perimeter (chpt 2)

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Quarter 2

Chapters 3 and 4

Standard 1 (Number Sense, Properties and Operations)	Standard 2 Patterns, Functions, and Algebraic Structures	Standard 3 (Data Analysis, Statistics, and Probability)	Standard 4 (Shape, Dimension, and Geometric Relationships

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Using the Multiplicative Identity (chpt 3) Portions as Percents (chpt 3) Connecting Percents with Decimal and Fractions (chpt 3) Completing the Web (chpt 3) Investigating Ratios (chpt 3) Addition, Subtraction, and Opposites (chpt 3) Locating Negative Numbers (chpt 3) Absolute Value (chpt 3) Length on a Coordinate Graph (chpt 3) Enlarging two-dimensional shapes (chpt 4) Enlargement and Reduction Ratios (chpt 4) Ratios in Other Situations (chpt 4)	Intro to Variables (chpt 4) Writing Equivalent Expressions (chpt 4) Using Variables to Generalize (chpt 4)		

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	game

Quarter 3

Chapters 5 and 6

Standard 1 (Number Sense, Properties and Operations)	Standard 2 Patterns, Functions, and Algebraic Structures	Standard 3 (Data Analysis, Statistics, and Probability)	Standard 4 (Shape, Dimension, and Geometric Relationships
Representing Fraction Multiplication (chpt 5) Describing Parts of Parts (chpt 5) Calculating Parts of Parts (chpt 5) Multiplying Mixed Numbers (chpt 5) Making Sense of Decimal Mult. (chpt 5) Fraction Multiplication Number Sense (chpt 5) Dividing (chpt 6) Fractions as Division Problems (chpt 6) Problem Solving with Division (chpt 6) Solving Problems Involving Fraction Division (chpt 6)	Order of Operations (chpt 6) Naming Perimeters of Algebra Tiles (chpt 6) Combining Like Terms (chpt 6) Evaluating Algebraic Expressions (chpt 6)		Rearranging Areas (chpt 5) Area of a Parallelogram (chpt 5) Area of a Triangle (chpt 5) Area of a Trapezoid (chpt 5) Area of a Rectangular Shape (chpt 6)

International Society for Technology in Education Standards	Grade Level Technology Targets

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Quarter 4

Chapters 7-8 (and 9 if times allows)

Standard 1 (Number Sense, Properties and Operations)	Standard 2 Patterns, Functions, and Algebraic Structures	Standard 3 (Data Analysis, Statistics, and Probability)	Standard 4 (Shape, Dimension, and Geometric Relationships
Comparing Rates (chpt 7) Comparing Rates w/ Tables & Graphs (chpt 7)		Measures of Central Tendency (chpt 8) Choosing Mean or Median (chpt 8) Shape and Spread	Volume of a Rectangular Prism (chpt 9)
Analyzing Strategies for Dividing Fractions Chpt 7) Another Strategy for Division (chpt 7) Division with Fractions & Decimal (chpt 7) Fraction Division as Ratios (chpt 7) Inverse Operations (chpt 7) Distributive Property (chpt 7) Distance, Rate, and Time (chpt 8) Unit Conversions (chpt 8) Multiplicative Growth and Percents (chpt 9)	Distributive Property and Expressions Vocabulary (chpt 7) Writing Algebraic Equations and Inequalities (chpt 7) Writing Multiplication Equations (chpt 8)	Box Plots and Interquartile Range (chpt 8) Comparing and Choosing Representations (chpt 8) Statistical Questions (chpt 8)	Nets and Surface Area (chpt 9)

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Composition and Decomposition of Percents (chpt 9) Percent Discounts (chpt 9) Simple Interest and Tips (chpt 9)			

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Content Area: Mathematics Grade Level Expectations for 6th grade

Standard: 1. Number Sense, Properties, and Operations

<table>
<tr><td colspan="2">Prepared Graduates:

• Make both relative (multiplicative) and absolute (arithmetic) comparisons between quantities. Multiplicative thinking underlies proportional reasoning</td></tr>
<tr><td colspan="2">Concepts and skills students master:

1. Quantities can be expressed and compared using ratios and rates</td></tr>
<tr><td>Evidence Outcomes</td><td>21st Century Skill and Readiness Competencies</td></tr>
<tr><td>Students can:

a. Apply the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.[i] (CCSS: 6.RP.1)

b. Apply 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.[ii] (CCSS: 6.RP.2)

c. Use ratio and rate reasoning to solve real-world</td><td>Inquiry Questions:

1. How are ratios different from fractions?
2. What is the difference between quantity and number?
Relevance and Application:

1. Knowledge of ratios and rates allows sound decision-making in daily life such as determining best values when shopping, creating mixtures, adjusting recipes, calculating car mileage, using speed to determine travel time, or making saving and investing decisions.</td></tr>
</table>

and mathematical problems.[iii] (CCSS: 6.RP.3)

i. 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. (CCSS: 6.RP.3a)

ii. Use tables to compare ratios. (CCSS: 6.RP.3a)

iii. Solve unit rate problems including those involving unit pricing and constant speed.[iv] (CCSS: 6.RP.3b)

iv. Find a percent of a quantity as a rate per 100.[v] (CCSS: 6.RP.3c)

v. Solve problems involving finding the whole, given a part and the percent. (CCSS: 6.RP.3c)

vi. Use common fractions and percents to calculate parts of whole numbers in problem situations including comparisons of savings rates at different financial institutions (PFL)

vii. Express the comparison of two whole number quantities using differences, part-to-part ratios, and part-to-whole ratios in real contexts, including investing and saving (PFL)

viii. Use ratio reasoning to convert measurement units.[vi] (CCSS: 6.RP.3d)

2. Ratios and rates are used to solve important problems in science, business, and politics. For example developing more fuel-efficient vehicles, understanding voter registration and voter turnout in elections, or finding more cost-effective suppliers.
3. Rates and ratios are used in mechanical devices such as bicycle gears, car transmissions, and clocks.

Nature of Mathematics:

1. Mathematicians develop simple procedures to express complex mathematical concepts.
2. Mathematicians make sense of problems and persevere in solving them. (MP)
3. Mathematicians reason abstractly and quantitatively. (MP)

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Prepared Graduates:

- Are fluent with basic numerical and symbolic facts and algorithms, and are able to select and use appropriate (mental math, paper and pencil, and technology) methods based on an understanding of their efficiency, precision, and transparency

Concepts and skills students master:

2. Formulate, represent, and use algorithms with positive rational numbers with flexibility, accuracy, and efficiency

Evidence Outcomes	21st Century Skill and Readiness Competencies
Students can: a. Fluently divide multi-digit numbers using standard algorithms. (CCSS: 6.NS.2) b. Fluently add, subtract, multiply, and divide multi-digit decimals using standard algorithms for each operation. (CCSS: 6.NS.3) c. Find the greatest common factor of two whole numbers less than or equal to 100. (CCSS: 6.NS.4) d. Find the least common multiple of two	**Inquiry Questions:** 1. Why might estimation be better than an exact answer? 2. How do operations with fractions and decimals compare to operations with whole numbers? **Relevance and Application:** 1. Rational numbers are an essential component of mathematics. Understanding fractions, decimals, and percentages is the basis for probability, proportions, measurement, money, algebra, and geometry. **Nature of Mathematics:** 1. Mathematicians envision and test strategies for solving problems.

whole numbers less than or equal to 12. (CCSS: 6.NS.4) e. 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.[i] (CCSS: 6.NS.4) f. Interpret and model quotients of fractions through the creation of story contexts.[ii] (CCSS: 6.NS.1) g. Compute quotients of fractions.[iii] (CCSS: 6.NS.1) h. Solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.[iv] (CCSS: 6.NS.1)	2. Mathematicians model with mathematics. (MP) 3. Mathematicians look for and make use of structure. (MP)

Prepared Graduates: • **Understand the structure and properties of our number system. At their most basic level numbers are abstract symbols that represent real-world quantities**
Concepts and skills students master:

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3. In the real number system, rational numbers have a unique location on the number line and in space	
Evidence Outcomes	**21st Century Skill and Readiness Competencies**
Students can: a. Explain why positive and negative numbers are used together to describe quantities having opposite directions or values.[i] (CCSS: 6.NS.5) i. Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (CCSS: 6.NS.5) b. Use number line diagrams and coordinate axes to represent points on the line and in the plane with negative number coordinates.[ii] (CCSS: 6.NS.6) i. Describe a rational number as a point on the number line. (CCSS: 6.NS.6) ii. Use opposite signs of numbers to indicate locations on opposite sides of 0 on the number line. (CCSS:	**Inquiry Questions:** 1. Why are there negative numbers? 2. How do we compare and contrast numbers? 3. Are there more rational numbers than integers? **Relevance and Application:** 1. Communication and collaboration with others is more efficient and accurate using rational numbers. For example, negotiating the price of an automobile, sharing results of a scientific experiment with the public, and planning a party with friends. 2. Negative numbers can be used to represent quantities less than zero or quantities with an associated direction such as debt, elevations below sea level, low temperatures, moving backward in time, or an object slowing down **Nature of Mathematics:** 1. Mathematicians use their understanding of relationships among numbers and the rules of number systems to create models of a wide variety of situations. 2. Mathematicians construct viable arguments and critique the reasoning of others. (MP) 3. Mathematicians attend to precision. (MP)

6.NS.6a) iii. Identify that the opposite of the opposite of a number is the number itself.[iii] (CCSS: 6.NS.6a) iv. Explain when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. (CCSS: 6.NS.6b) v. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. (CCSS: 6.NS.6c) vi. Find and position pairs of integers and other rational numbers on a coordinate plane. (CCSS: 6.NS.6c) c. Order and find absolute value of rational numbers. (CCSS: 6.NS.7) i. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.[iv] (CCSS: 6.NS.7a) ii. Write, interpret, and explain	

statements of order for rational numbers in real-world contexts.[v] (CCSS: 6.NS.7b) iii. Define the absolute value of a rational number as its distance from 0 on the number line and interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.[vi] (CCSS: 6.NS.7c) iv. Distinguish comparisons of absolute value from statements about order.[vii] (CCSS: 6.NS.7d) d. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane including the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (CCSS: 6.NS.8)	

[1] For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes." (CCSS: 6.RP.1)

[1] For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (CCSS: 6.RP.2)

[1] e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. (CCSS: 6.RP.3)

[1] For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? (CCSS: 6.RP.3b)

[1] e.g., 30% of a quantity means 30/100 times the quantity. (CCSS: 6.RP.3c)

[1] manipulate and transform units appropriately when multiplying or dividing quantities. (CCSS: 6.RP.3d)

[1] For example, express 36 + 8 as 4 (9 + 2). (CCSS: 6.NS.4)

[1] For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (CCSS: 6.NS.1)

[1] In general, (a/b) ÷ (c/d) = ad/bc.). (CCSS: 6.NS.1)

[1] How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi? (CCSS: 6.NS.1)

[1] e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). (CCSS: 6.NS.5)

[1] Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. (CCSS: 6.NS.6)

[1] e.g., –(–3) = 3, and that 0 is its own opposite. (CCSS: 6.NS.6a)

[1] For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. (CCSS: 6.NS.7a)

[1] For example, write –3 ºC > –7 ºC to express the fact that –3 ºC is warmer than –7 ºC. (CCSS: 6.NS.7b)

[1] For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars. (CCSS: 6.NS.7c)

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[1] For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars. (CCSS: 6.NS.7d)

Standard: 2. Patterns, Functions, and Algebraic Structures

Prepared Graduates:

- Make claims about relationships among numbers, shapes, symbols, and data and defend those claims by relying on the properties that are the structure of mathematics

Concepts and skills students master:

1. Algebraic expressions can be used to generalize properties of arithmetic

Evidence Outcomes	21st Century Skill and Readiness Competencies
Students can: a. Write and evaluate numerical expressions involving whole-number exponents. (CCSS: 6.EE.1) b. Write, read, and evaluate expressions in which letters stand for numbers. (CCSS: 6.EE.2) i. Write expressions that record operations with numbers and with letters standing for numbers.[i] (CCSS: 6.EE.2a)	**Inquiry Questions:** 1. If we didn't have variables, what would we use? 2. What purposes do variable expressions serve? 3. What are some advantages to being able to describe a pattern using variables? 4. Why does the order of operations exist? 5. What other tasks/processes require the use of a strict order of step **Relevance and Application:** 1. The simplification of algebraic expressions allows one to communicate mathematics efficiently for use in a variety of contexts. 2. Using algebraic expressions we can efficiently expand and describe

ii. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient) and describe one or more parts of an expression as a single entity.[ii] (CCSS: 6.EE.2b) iii. Evaluate expressions at specific values of their variables including expressions that arise from formulas used in real-world problems.[iii] (CCSS: 6.EE.2c) iv. 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). (CCSS: 6.EE.2c) c. Apply the properties of operations to generate equivalent expressions.[iv] (CCSS: 6.EE.3) d. Identify when two expressions are equivalent.[v] (CCSS: 6.EE.4)	patterns in spreadsheets or other technologies. **Nature Of Mathematics:** 1. Mathematics can be used to show that things that seem complex can be broken into simple patterns and relationships. 2. Mathematics can be expressed in a variety of formats. 3. Mathematicians reason abstractly and quantitatively. (MP) 4. Mathematicians look for and make use of structure. (MP) 5. Mathematicians look for and express regularity in repeated reasoning. (MP)

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Prepared Graduates:

- Make claims about relationships among numbers, shapes, symbols, and data and defend those claims by relying on the properties that are the structure of mathematics

Concepts and skills students master:

2. Variables are used to represent unknown quantities within equations and inequalities

Evidence Outcomes	**21st Century Skill and Readiness Competencies**
Students can: a. Describe 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? (CCSS: 6.EE.5) b. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. (CCSS: 6.EE.5) c. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem. (CCSS: 6.EE.6)	**Inquiry Questions:** 1. Do all equations have exactly one unique solution? Why? 2. How can you determine if a variable is independent or dependent? **Relevance and Application:** 1. Variables allow communication of big ideas with very few symbols. For example, d = r * t is a simple way of showing the relationship between the distance one travels and the rate of speed and time traveled, and expresses the relationship between circumference and diameter of a circle. 2. Variables show what parts of an expression may change compared to those parts that are fixed or constant. For example, the price of an item may be fixed in an expression, but the number of items purchased may change. **Nature of Mathematics:** 1. Mathematicians use graphs and equations to represent relationships among variables. They use multiple representations

i. Recognize that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (CCSS: 6.EE.6) d. 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. (CCSS: 6.EE.7) e. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. (CCSS: 6.EE.8) f. Show that inequalities of the form $x > c$ or $x <$ c have infinitely many solutions; represent solutions of such inequalities on number line diagrams. (CCSS: 6.EE.8) g. Represent and analyze quantitative relationships between dependent and independent variables. (CCSS: 6.EE) i. Use variables to	to gain insights into the relationships between variables. 2. Mathematicians can think both forward and backward through a problem. An equation is like the end of a story about what happened to a variable. By reading the story backward, and undoing each step, mathematicians can find the value of the variable. 3. Mathematicians model with mathematics. (MP) 4. Mathematicians look for and express regularity in repeated reasoning. (MP)

represent two quantities in a real-world problem that change in relationship to one another. (CCSS: 6.EE.9) ii. 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. (CCSS: 6.EE.9) iii. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.[i] (CCSS: 6.EE.9)	

[1] For example, express the calculation "Subtract y from 5" as 5 – y. (CCSS: 6.EE.2a)

[1] For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms. (CCSS: 6.EE.2b)

[1] For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2. (CCSS: 6.EE.2c)

[1] For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y. (CCSS: 6.EE.3)

[1] i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for. Reason about and solve one-variable equations and inequalities. (CCSS: 6.EE.4)

[1] For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time. (CCSS: 6.EE.9)

Standard: 3. Data Analysis, Statistics, and Probability

Prepared Graduates:

- Solve problems and make decisions that depend on understanding, explaining, and quantifying the variability in data

Concepts and skills students master:

1. Visual displays and summary statistics of one-variable data condense the information in data sets into usable knowledge

Evidence Outcomes	21st Century Skill and Readiness Competencies
Students can: a. Identify a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.[i] (CCSS: 6.SP.1) b. Demonstrate 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. (CCSS: 6.SP.2) c. Explain that a measure of center for a	**Inquiry Questions:** 1. Why are there so many ways to describe data? 2. When is one data display better than another? 3. When is one statistical measure better than another? 4. What makes a good statistical question? **Relevance and Application:** 1. Comprehension of how to analyze and interpret data allows better understanding of large and

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. (CCSS: 6.SP.3)

d. Summarize and describe distributions. (CCSS: 6.SP)

i. Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (CCSS: 6.SP.4)

ii. Summarize numerical data sets in relation to their context. (CCSS: 6.SP.5)

1. Report the number of observations. (CCSS: 6.SP.5a)

2. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement. (CCSS: 6.SP.5b)

3. Give 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. (CCSS: 6.SP.5c)

4. Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

complex systems such as analyzing employment data to better understand our economy, or analyzing achievement data to better understand our education system.

2. Different data analysis tools enable the efficient communication of large amounts of information such as listing all the student scores on a state test versus using a box plot to show the distribution of the scores

Nature of Mathematics:

1. Mathematicians leverage strategic displays to reveal data.
2. Mathematicians model with mathematics. (MP)
3. Mathematicians use appropriate tools strategically. (MP)
4. Mathematicians attend to precision. (MP)

(CCSS: 6.SP.5d)	

For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. (CCSS: 6.SP.1)

Standard: 4. Shape, Dimension, and Geometric Relationships

Prepared Graduates:

- Make claims about relationships among numbers, shapes, symbols, and data and defend those claims by relying on the properties that are the structure of mathematics

Concepts and skills students master:

1. Objects in space and their parts and attributes can be measured and analyzed

Evidence Outcomes	**21st Century Skill and Readiness Competencies**
Students Can: **Students can** a. Develop and apply formulas and procedures for area of plane figures i. Find the area of right triangles, other	**Inquiry Questions:** 1. Can two shapes have the same volume but different surface areas? Why? 2. Can two figures have the same surface area but different volumes? Why? 3. What does area tell you about a figure? 4. What properties affect the area of figures?

triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes. (CCSS: 6.G.1)

ii. Apply these techniques in the context of solving real-world and mathematical problems. (CCSS: 6.G.1)

b. Develop and apply formulas and procedures for volume of regular prisms.

i. 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. (CCSS: 6.G.2)

ii. Show that volume is the same as multiplying the edge lengths of a rectangular prism. (CCSS: 6.G.2)

iii. 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. (CCSS: 6.G.2)

c. Draw polygons in the coordinate plan to solve real-world and mathematical problems. (CCSS: 6.G.3)

i. Draw polygons in the coordinate plane given coordinates for the vertices.

ii. Use coordinates to find the length of a side

Relevance and Application:

1. Knowledge of how to find the areas of different shapes helps do projects in the home and community. For example how to use the correct amount of fertilizer in a garden, buy the correct amount of paint, or buy the right amount of material for a construction project.

2. The application of area measurement of different shapes aids with everyday tasks such as buying carpeting, determining watershed by a center pivot irrigation system, finding the number of gallons of paint needed to paint a room, decomposing a floor plan, or designing landscapes.

Nature of Mathematics:

1. Mathematicians realize that measurement always involves a certain degree of error.
2. Mathematicians create visual representations of problems and ideas that reveal relationships and meaning.
3. Mathematicians make sense of problems and persevere in solving them. (MP)
4. Mathematicians reason abstractly and quantitatively. (MP)

joining points with the same first coordinate or the same second coordinate. (CCSS: 6.G.3) d. Develop and apply formulas and procedures for the surface area. i. Represent three-dimensional figures using nets made up of rectangles and triangles. (CCSS: 6.G.4) ii. Use nets to find the surface area of figures. (CCSS: 6.G.4) iii. Apply techniques for finding surface area in the context of solving real-world and mathematical problems. (CCSS: 6.G.4)	