Califon Public School
Curriculum

Subject:	Grade:	Unit #:	Pacing:
Math	6th	1	8 weeks

Unit Title: The Number System

OVERVIEW OF UNIT:

This unit starts with the study of whole numbers and decimals. The students work to extend their fluency with the standard algorithms by using these for all four operations with decimals and to compute quotients of multi-digit numbers. The unit then moves into fraction concepts by looking at converting fractions and decimals. After that, the students will work on learning skills to multiply and divide fractions. Finally, the unit wraps up by looking at rational numbers. The students will start by extending their knowledge of the base ten system by learning about negative numbers. Then students will work on comparing and ordering integers, absolute value, and rational numbers on the coordinate plane.

Big Ideas

- Whole Numbers
- Decimals
- Fractions
- Converting Fractions and Decimals
- Rational Numbers
- Absolute Value
- Rational Numbers on the Coordinate Plane

Essential Questions

- How do you divide multi-digit numbers fluently?
- How do you write the prime factorization of numbers?
- How do you find the least common multiple of two numbers?
- How do you find the greatest common factor of two numbers?
- How do you fluently add, subtract, multiply, and divide decimals?
- How do you convert fractions and decimals?
- How can you compare and order fractions and decimals?
- How do you multiply fractions?
- How do you simplify fractional factors by using the greatest common factor?
- How can you use a model to show the division of fractions?
- How can you divide fractions?
- How can you divide mixed numbers?
- How can you identify positive and negative numbers?
- How can positive and negative numbers be used to represent real-world quantities?
- How do you compare and order integers?

- How can you plot rational numbers on a number line?
- How can you use a number line to identify opposites?
- How do you compare and order rational numbers?
- How can you find and interpret the absolute value of rational numbers?
- How can you plot ordered pairs of rational numbers on a coordinate plane?
- How can you identify the relationship between points on a coordinate plane?
- How can you find the distance between two points that lie on a horizontal or vertical line on a coordinate plane?

Objectives

- Students will be able to divide multi-digit numbers.
- Students will be able to write the prime factorization of a number.
- Students will be able to determine the least common multiple of two whole numbers.
- Students will be able to determine the greatest common factor of two whole numbers.
- Students will be able to add and subtract multi-digit decimals.
- Students will be able to multiply multi-digit decimals.
- Students will be able to divide decimals by whole numbers.
- Students will be able to divide whole numbers and decimals by decimals.
- Students will be able to convert between fractions and decimals.
- Students will be able to compare and order fractions and decimals.
- Students will be able to multiply fractions.
- Students will be able to simplify fractional factors by using the greatest common factor.
- Students will be able to use a model to show the division of fractions.
- Students will be able to divide fractions.
- Students will be able to divide mixed numbers.
- Students will be able to understand positive and negative numbers.
- Students will be able to use positive and negative numbers to represent real-world quantities.
- Students will be able to compare and order integers.
- Students will be able to plot rational numbers on a number line.
- Students will be able to use a number line to identify opposites.
- Students will be able to compare and order rational numbers.
- Students will be able to find the absolute value of rational numbers.
- Students will be able to interpret the absolute value of rational numbers.
- Students will be able to plot ordered pairs of rational numbers on a coordinate plane.
- Students will be able to identify the relationship between points on a coordinate plane.
- Students will be able to find the distance between two points that lie on a horizontal or vertical line on a coordinate plane.

Assessment

Formative Assessment:

- Homework Assignments
- Classwork
- Quizzes

Benchmark:

- Link It Benchmark Assessment

Alternative:

- Skill Worksheets
- Class Discussions

Summative Assessment:

- Module Test
- Unit Test
- Performance Task
- Performance Task
- Modified Tests (independently developed by teacher)
- Projects

Key Vocabulary

- Prime Factorization
- Least Common Multiple (LCM)
- Common Factor
- Greatest Common Factor (GCF)
- Reciprocals
- Multiplication Inverses
- Integers
- Opposites
- Positive Number
- Negative Number
- Rational Number
- Absolute Value
- Debt
- Coordinate Plane
- X-Axis
- Y-Axis
- Origin
- Ordered Pair
- X-Coordinate
- Y-Coordinate
- Quadrants
- Line symmetry
- Line of symmetry

Resources & Materials

- Textbook (Go Math Gr. 6)
- Maneuvering the Middle Gr. 6
- Promethean Board
- Calculator
- Teacher-Made Materials
- Guided Notes
- Edpuzzle (www.edpuzzle.com)
- Online Games
- IXL (www.ixl.com/math)
- Khan Academy (www.khanacademy.org)
- HMH Online (https://www.hmhco.com/ui/#/dashboard)
- Desmos (www.desmos.com)
- Online Manipulatives (https://illuminations.nctm.org/)

Technology Infusion

Teacher Technology:

- Chromebook
- Promethean Board
- Edpuzzle
- Google Apps for Education

- Google Classroom

Student Technology:

- Google Classroom
- Chromebook
- IXL/Quizzizz/Blooket/Kahoot
- Edpuzzle

Activities:

- Students will use their Chromebooks to access Google Classroom and Edpuzzle to watch videos about math topics and write out explanations for how practice problems were solved or how the math connects to real-life situations.
- Students will use their Chromebooks to access websites like IXL, Khan Academy, Quizzizz, Blooket, Kahoot, etc. to practice and review the skills learned throughout the unit. They will also track their data to demonstrate progress and growth within specified topics.

Standard	Standard Description
8.1.8.DA.1	Organize and transform data collected using computational tools to make it usable for a specific purpose.

Interdisciplinary Integration

Activities:

- Students will practice using the unit vocabulary as they talk and write about the problems they are solving. Understanding the vocabulary will aid their understanding of the concepts covered in this unit.

Resources:

- Quizlet
- Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html
- Engineering Go For It! - http://teachers.egfi-k12.org/
- US Department of Education STEM - http://www.ed.gov/stem
- What Every Educator Should Know About Using Google by Shell Education
- International Literacy Association Read Write Think - http://www.readwritethink.org/

Standard	Standard Description
NJSLS-ELA W.AW.6.1	Write arguments on discipline-specific content (e.g., social studies, science, technical subjects, English/Language Arts) to support claims with clear reasons and relevant evidence.

21st Century Life Skills Standards

Activities:

- Students will work in groups to collaborate, at times taking leadership roles, to communicate project ideas to the whole class.

Standard	Student Learning Objectives

9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.

Careers	
Activities: ● Students will discuss and then write detailed explanations utilizing appropriate mathematical vocabulary to explain their thought process for obtaining solutions to specific problems	
Practice	**Description**
Utilize critical thinking to make sense of problems and persevere in solving them.	Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of the problem and carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through this when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. Their own actions or the actions of others.
Use technology to enhance productivity increase collaboration and communicate effectively.	Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
Work productively in teams while using cultural/global competence.	Students positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Standards for Mathematical Practice	
MP #	Practice
1	Make sense of problems and persevere in solving them.
3	Construct viable arguments and critique the reasoning of others.
6	Attend to precision.
7	Look for and make use of structure.
8	Look for and express regularity in repeated reasoning.

Standards	
Standard #	**Standard Description**
6.NS.A	Apply and extend previous understandings of multiplication and division to divide fractions by fractions
6.NS.A.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. 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.

	(In general, (a/b)÷(c/d)=ad/bc). How much chocolate will each person get if 3 people share1/2 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 length3/4 mi and area 1/2 square mi?
6.NS.B	Compute fluently with multi-digit numbers & find common factors & multiples
6.NS.B.2	With accuracy and efficiency, divide multi-digit numbers using the standard algorithm.
6.NS.B.3	With accuracy and efficiency, add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.B.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. For example, express 36+8 as 4(9+2).
6.NS.C	Apply and extend previous understandings of numbers to the system of rational numbers
6.NS.C.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.NS.C.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.
6.NS.C.6a	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.
6.NS.C.6b	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.
6.NS.C.6c	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.
6.NS.C.7	Understand ordering and absolute value of rational numbers.
6.NS.C.7a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret -3>-7 as a statement that -3 is located to the right of -7 on a number line oriented from left to right.
6.NS.C.7b	Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3°C>-7°C to express the fact that -3°C is warmer than -7°C .
6.NS.C.7c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity

	in a real-world situation. For example, for an account balance of -30dollars, write |-30|=30 to describe the size of the debt in dollars.
6.NS.C.7d	Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30dollars represents a debt greater than 30 dollars.
6.NS.C.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.

Differentiation
Students with 504 plans
• Preferential seating • Guided notes • Extra time • Teacher check-ins • Use graphic organizers • Redirect attention • Prioritize tasks • Small group testing • Provide modifications & accommodations per individual student's 504 plan
Special Education
• Provide modifications & accommodations as listed in the student's IEP • Position the student near a helping peer or have quick access to the teacher • Modify or reduce assignments/tasks • Reduce the length of the assignment for different modes of delivery • Increase one-to-one time • Prioritize tasks • Use graphic organizers • Use online resources for skill-building • Provide teacher notes • Use collaborative grouping strategies, such as small groups • NJDOE resources - http://www.state.nj.us/education/specialed/
Response to Intervention (RTI)
• Tiered interventions following the RTI framework • Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ • Interventional Central - http://www.interventioncentral.org/
English Language Learners (ELL)
• Provide text-to-speech • Use of a translation dictionary or software • Provide graphic organizers

- NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm
- Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
- Utilize project-based learning for greater depth of knowledge
- Utilize exploratory connections to higher-grade concepts
- Contents should be modified: real-world problems, audiences, deadlines, evaluations, transformations
- Learning environments should be modified: student-centered learning, independence, openness, complexity, and groups should be varied
- NJDOE resources

Califon Public School
Curriculum

Subject: Math	Grade: 6th	Unit #: 2	Pacing: 9 weeks

Unit Title: Ratios & Rates

OVERVIEW OF UNIT:

In this unit, students will work on using different strategies for solving problems that involve ratios. Also, they will develop an understanding of the relationship between fractions, decimals, and percents. Additionally, they will look at how entries in ratio tables are related to each other. Finally, the unit will look at units of measure and how to convert between different forms.

Big Ideas

- Ratios
- Rates
- Equivalent Ratios
- Unit Rates
- Percents
- Percent of a Quantity
- Converting Units
- Transform Units
- Distance, Rate, & Time Formulas

Essential Questions

- How can you write ratios?
- How do you write rates?
- How can you use a multiplication table to find equivalent ratios?
- How can you use tables to solve problems involving equivalent ratios?
- How are unit rates used to make comparisons?
- How can you solve problems involving unit rates?
- How can you use a graph to represent equivalent ratios?
- How does a model show a percent as a rate per 100?
- How can you write percents as fractions and decimals?
- How can you write decimals and fractions as percents?
- How do you find a percent of a quantity?
- How do you find the whole when given a part and the percent?
- How is ratio reasoning used to convert from one unit of length to another?
- How can you transform units to solve problems?
- How do you use a formula to solve problems involving distance, rate, and time?

Objectives
• Students will be able to write ratios and rates. • Students will be able to use a multiplication table to find equivalent ratios. • Students will be able to use tables to solve problems involving equivalent ratios. • Students will be able to make comparisons using unit rates. • Students will be able to solve problems using unit rates. • Students will be able to use a graph to represent equivalent ratios. • Students will be able to use a model to show a percent as a rate per 100. • Students will be able to write percents as fractions and decimals. • Students will be able to write decimals and fractions as percents. • Students will be able to find a percent of a quantity. • Students will be able to find the whole when given a part and the percent. • Students will be able to use ratio reasoning to convert from one unit of length to another. • Students will be able to transform units to solve problems. • Students will be able to use a formula to solve problems involving distance, rate, and time.

Assessment	
Formative Assessment: • Homework Assignments • Classwork • Quizzes • Skill Worksheets • Class Discussions **Summative Assessment:** • Module Test • Unit Test • Performance Task	**Benchmark:** • Link It Benchmark Assessment **Alternative:** • Performance Task • Modified Tests (independently developed by teacher) • Projects

Key Vocabulary	
• Rate • Ratio • Unit Rate • Equivalent Ratios • Percent	• Percent Proportion • Capacity • Conversion Factor • Proportion

Resources & Materials
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Resources:

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- Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html

- Engineering Go For It! - http://teachers.egfi-k12.org/
- US Department of Education STEM - http://www.ed.gov/stem
- What Every Educator Should Know About Using Google by Shell Education
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Activities:

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Standards for Mathematical Practice

MP #	Practice
1	Make sense of problems and persevere in solving them.

2	Reason abstractly and quantitatively.
3	Construct viable arguments and critique the reasoning of others.
6	Attend to precision.
7	Look for and make use of structure.
8	Look for and express regularity in repeated reasoning.

Standards	
Standard #	**Standard Description**
6.RP.A	Understand ratio concepts and use ratio reasoning to solve problems
6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."
6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is ¾-cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger." (Clarification: Expectations for unit rates in this grade are limited to non-complex fractions.)
6.RP.A.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.
6.RP.A.3a	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.
6.RP.A.3b	Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100times the quantity); solve problems involving finding the whole, given a part and the percent.
6.RP.A.3d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Differentiation
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● Preferential seating ● Guided notes ● Extra time ● Teacher check-ins ● Use graphic organizers ● Redirect attention ● Prioritize tasks

- Small group testing
- Provide modifications & accommodations per individual student's 504 plan

Special Education

- Provide modifications & accommodations as listed in the student's IEP
- Position the student near a helping peer or have quick access to the teacher
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- Reduce the length of the assignment for different modes of delivery
- Increase one-to-one time
- Prioritize tasks
- Use graphic organizers
- Use online resources for skill-building
- Provide teacher notes
- Use collaborative grouping strategies, such as small groups
- NJDOE resources - http://www.state.nj.us/education/specialed/

Response to Intervention (RTI)

- Tiered interventions following the RTI framework
- Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/
- Interventional Central - http://www.interventioncentral.org/

English Language Learners (ELL)

- Provide text-to-speech
- Use of a translation dictionary or software
- Provide graphic organizers
- NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm
- Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
- Utilize project-based learning for greater depth of knowledge
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Curriculum

Subject:	Grade:	Unit #:	Pacing:
Math	6th	3	8 weeks

Unit Title: Expressions & Equations

OVERVIEW OF UNIT:

In this unit, students will learn to generate equivalent numerical expressions using exponents, generate equivalent numerical expressions using prime factorization, and simplify numerical expressions using the order of operations. In addition, students will learn to determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; evaluate algebraic expressions for the given value of a variable; and generate equivalent expressions using the properties of operations (inverse, identity, commutative, associative, and distributive properties). Additionally, in this unit, students will learn to write one-variable, one-step equations to represent constraints or conditions within problems; model and solve one-variable, one-step equations that represent problems; write corresponding real-world problems given one-variable, one-step equations; and write inequalities. Furthermore, students will learn to identify independent and dependent quantities from tables and graphs, write an equation that represents the relationship between independent and dependent quantities from a table, represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$, and graph points in all four quadrants using ordered pairs of rational numbers.

Big Ideas

- Exponents
- Order of Operations
- Algebraic Expressions
- Equivalent Expressions
- Writing Equations
- Solving Equations
- Writing Inequalities
- Graphing Inequalities
- Relationships Between Variables
- Independent and Dependent Variables
- Equations and Graphs

Essential Questions

- How can you write and evaluate expressions involving exponents?
- How is the order of operations used to evaluate expressions involving exponents?
- How do you write an algebraic expression?
- How can you evaluate algebraic expressions and formulas?
- How are algebraic expressions used to solve problems?

- How do you generate equivalent algebraic expressions using properties of operations and combining like terms?
- How can you identify equivalent algebraic expressions?
- How do you determine whether a number is a solution of an equation?
- How do you write an equation to represent a situation?
- How can you solve addition and subtraction equations?
- How can you solve multiplication and division equations?
- How do you determine whether a number is a solution of an inequality?
- How can you write and graph inequalities to represent situations?
- How do you write an equation to represent the relationship between an independent variable and a dependent variable?
- How do you translate between equations and tables?
- How can you graph the relationship between two quantities?
- How can you translate between equations and graphs?

Objectives

- Students will be able to write and evaluate expressions involving exponents.
- Students will be able to use the order of operations to evaluate expressions involving exponents.
- Students will be able to write algebraic expressions.
- Students will be able to evaluate algebraic expressions and formulas.
- Students will be able to use algebraic expressions to solve problems.
- Students will be able to generate equivalent algebraic expressions using properties of operations and combining like terms.
- Students will be able to identify equivalent algebraic expressions.
- Students will be able to determine whether a number is a solution of an equation.
- Students will be able to write an equation to represent a situation.
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- Students will be able to determine whether a number is a solution of an inequality.
- Students will be able to write and graph inequalities to represent situations.
- Students will be able to write an equation to represent the relationship between an independent variable and a dependent variable.
- Students will be able to translate between equations and tables.
- Students will be able to graph the relationship between two quantities.
- Students will be able to translate between equations and graphs.

Assessment

Formative Assessment:

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- Classwork
- Quizzes
- Skill Worksheets
- Class Discussions

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Alternative:

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Summative Assessment:

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Key Vocabulary

- Exponent
- Base
- Numerical Expression
- Evaluate
- Order of Operations
- Algebraic Expression
- Variable
- Terms
- Coefficient
- Equivalent Expression
- Like Terms
- Equation
- Solution of an Equation
- Inequality
- Solution of an Inequality
- Independent Variable
- Dependent Variable
- Linear Equation

Resources & Materials

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Activities:

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Resources:

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- Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html
- Engineering Go For It! - http://teachers.egfi-k12.org/
- US Department of Education STEM - http://www.ed.gov/stem
- What Every Educator Should Know About Using Google by Shell Education
- International Literacy Association Read Write Think - http://www.readwritethink.org/

Standard	Standard Description
NJSLS-ELA W.AW.6.1	Write arguments on discipline-specific content (e.g., social studies, science, technical subjects, English/Language Arts) to support claims with clear reasons and relevant evidence.

21st Century Life Skills Standards

Activities:

- Students will work in groups to collaborate, at times taking leadership roles, to communicate project ideas to the whole class.

Standard	Student Learning Objectives
9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.

Careers	
Activities: ● Students will discuss and then write detailed explanations utilizing appropriate mathematical vocabulary to explain their thought process for obtaining solutions to specific problems	
Practice	**Description**
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Use technology to enhance productivity increase collaboration and communicate effectively.	Students find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
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Standards for Mathematical Practice	
MP #	Practice
1	Make sense of problems and persevere in solving them.
2	Reason abstractly and quantitatively.
3	Construct viable arguments and critique the reasoning of others.
6	Attend to precision.
8	Look for and express regularity in repeated reasoning.

Standards	
Standard #	**Standard Description**
6.EE.A	Apply and extend previous understandings of arithmetic to algebraic expressions
6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.
6.EE.A.2a	Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as 5-y.
6.EE.A.2b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression 2(8+7) as a product of two factors; view (8+7) as both a single entity and a sum of two terms.

6.EE.A.2c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas V=6s^3 and A=6s^2 to find the volume and surface area of a cube with sides of length s=1/2.
6.EE.A.3	Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3(2+x) to produce the equivalent expression6+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.
6.EE.A.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). For example, the expressions y+y+y and 3yare equivalent because they name the same number regardless of which number y stands for.
6.EE.B	Reason about and solve one-variable equations and inequalities
6.EE.B.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.EE.B.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.
6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form x+p and px=qfor cases in which p, q and x are all nonnegative rational numbers.
6.EE.B.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.
6.EE.C	Represent and analyze quantitative relationships between dependent and independent variables
6.EE.C.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. 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.

Differentiation
Students with 504 plans
● Preferential seating

- Guided notes
- Extra time
- Teacher check-ins
- Use graphic organizers
- Redirect attention
- Prioritize tasks
- Small group testing
- Provide modifications & accommodations per individual student's 504 plan

Special Education

- Provide modifications & accommodations as listed in the student's IEP
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Response to Intervention (RTI)

- Tiered interventions following the RTI framework
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English Language Learners (ELL)

- Provide text-to-speech
- Use of a translation dictionary or software
- Provide graphic organizers
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- Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm

Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
- Utilize project-based learning for greater depth of knowledge
- Utilize exploratory connections to higher-grade concepts
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Califon Public School
Curriculum

Subject: Math	Grade: 6th	Unit #: 4	Pacing: 7 weeks

Unit Title: Geometry

OVERVIEW OF UNIT:

In this unit, students will learn how to model area formulas for parallelograms, trapezoids, and rhombuses by decomposing and rearranging parts of those shapes. Model area formulas for triangles by decomposing and rearranging parts of shapes. Write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles, where dimensions are positive rational numbers. Write equations that represent problems related to the volume of right rectangular prisms where the dimensions are positive rational numbers. Additionally, students will learn how to use absolute value to find distances between points in the coordinate plane and solve problems that involve drawing polygons in the coordinate plane and finding the length of a side. Finally, students will identify nets and use nets to find the surface area of a solid and calculate the volume of rectangular solids, and use volume equations to solve problems.

Big Ideas

- Area of Parallelograms
- Area of Triangles
- Area of Quadrilaterals
- Composite Figures
- Figures on the Coordinate Plane
- Three-Dimensional Figures & Nets
- Surface Area
- Volume of Rectangular Prisms

Essential Questions

- How do you calculate the area of parallelograms?
- How do you calculate the area of triangles?
- How do you calculate the area of trapezoids?
- How do you calculate the area of composite figures?
- How can you plot polygons on a coordinate plane and find their side lengths?
- How are nets used to represent three-dimensional figures?
- How do you find the surface area of prisms and pyramids?
- How do you find the volume of rectangular prisms with fractional edge lengths?

Objectives

- Students will be able to find the area of parallelograms.
- Students will be able to find the area of triangles.

- Students will be able to find the area of trapezoids.
- Students will be able to find the area of composite figures.
  Students will be able to plot polygons on a coordinate plane and find their side lengths.
- Students will be able to use nets to represent three-dimensional figures.
- Students will be able to find the surface area of prisms and pyramids.
- Students will be able to find the volume of rectangular prisms with fractional edge lengths.

Assessment

Formative Assessment:

- Homework Assignments
- Classwork
- Quizzes
- Skill Worksheets
- Class Discussions

Summative Assessment:

- Module Test
- Unit Test
- Performance Task

Benchmark:

- Link It Benchmark Assessment

Alternative:

- Performance Task
- Modified Tests (independently developed by teacher)
- Projects

Key Vocabulary

- Area
- Parallelogram
- Congruent
- Trapezoid
- Composite Figure
- Regular Polygon
- Solid Figure
- Net
- Surface Area
- Lateral Area
- Volume

Resources & Materials

- Textbook (Go Math Gr. 6)
- Maneuvering the Middle Gr. 6
- Promethean Board
- Calculator
- Teacher-Made Materials
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- HMH Online (https://www.hmhco.com/ui/#/dashboard)
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Standard	Standard Description
8.1.8.DA.1	Organize and transform data collected using computational tools to make it usable for a specific purpose.

Interdisciplinary Integration

Activities:

- Students will practice using the unit vocabulary as they talk and write about the problems they are solving. Understanding the vocabulary will aid their understanding of the concepts covered in this unit.

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Standards for Mathematical Practice	
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1	Make sense of problems and persevere in solving them.
3	Construct viable arguments and critique the reasoning of others.
4	Model with mathematics.
5	Use appropriate tools strategically.
6	Attend to precision.

Standards	
Standard #	**Standard Description**
6.G.A	Solve real-world and mathematical problems involving area, surface area, and volume
6.G.A.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.
6.G.A.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=lwh and V=Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.A.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.
6.G.A.4	Represent three-dimensional figures (e.g., pyramid, triangular prism, rectangular prism) 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.

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Califon Public School
Curriculum

Subject: Math	Grade: 6th	Unit #: 5	Pacing: 7 weeks

Unit Title: Statistics

OVERVIEW OF UNIT:

Students will learn how to: represent numeric data graphically, including dot plots, histograms, and box plots; use graphical representations of numeric data to describe the center, spread, and shape of a data distribution; summarize numeric data with numerical summaries, including the mean and median and the range and interquartile range (IQR); interpret numeric data summarized in dot plots, histograms, and box plots; summarize categorical data with numerical and graphical summaries, including mode and relative frequency tables.

Big Ideas

- Data Displays
- Measures of Center
- Statistical Questions
- Dot Plots
- Frequency Tables
- Histograms
- Box Plots
- Mean Absolute Deviation
- Measures of Variability
- Distribution

Essential Questions

- How do you recognize statistical questions?
- How can you describe a data set by stating what quantity was measured and how it was measured?
- How are dot plots and frequency tables used to organize data?
- How is data displayed in histograms?
- How can you explain the mean as a fair share and as a balance point?
- How can you summarize a data set by using mean, median, and mode?
- How can you determine what effects outliers have on measures of center?
- How is data displayed in box plots?
- How is the mean absolute deviation a measure of variability from the mean?
- How can you summarize a data set by using range, interquartile range, and mean absolute deviation?
- How can you choose appropriate measures of center and variability to describe data and justify the choice?
- How would you describe the distribution of a data set collected to answer a statistical question?

Objectives
• Students will be able to recognize statistical questions. • Students will be able to describe a data set by stating what quantity was measured and how it was measured. • Students will be able to use dot plots and frequency tables to organize data. • Students will be able to display data in histograms. • Students will be able to understand the mean as a fair share and as a balance point. • Students will be able to summarize a data set by using mean, median, and mode. • Students will be able to determine the effects of outliers on measures of center. • Students will be able to display data in box plots. • Students will be able to understand mean absolute deviation as a measure of variability from the mean. • Students will be able to summarize a data set by using range, interquartile range, and mean absolute deviation. • Students will be able to choose appropriate measures of center and variability to describe data and justify the choice. • Students will be able to describe the distribution of a data set collected to answer a statistical question.

Assessment	
Formative Assessment: • Homework Assignments • Classwork • Quizzes • Skill Worksheets • Class Discussions **Summative Assessment:** • Module Test • Unit Test • Performance Task	**Benchmark:** • Link It Benchmark Assessment **Alternative:** • Performance Task • Modified Tests (independently developed by teacher) • Projects

Key Vocabulary	
• Data • Statistical Question • Dot Plot • Frequency • Frequency Table • Relative Frequency Table • Histogram • Mean • Measure of Center • Median	• Mode • Outlier • Lower Quartile • Upper Quartile • Box Plot • Mean Absolute Deviation • Measure of Variability • Range • Interquartile Range • Distribution

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Standards	
Standard #	**Standard Description**
6.SP.A	Develop understanding of statistical variability
6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. 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.
6.SP.A.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.
6.SP.A.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.
6.SP.B	Summarize and describe distributions
6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:
6.SP.B.5a	Reporting the number of observations.
6.SP.B.5b	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
6.SP.B.5c	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.
6.SP.B.5d	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.

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