Califon Public School
Curriculum

Subject: Math	Grade: 3rd	Unit #: 1	Pacing: 5 months 2 weeks

Unit Title: Whole Number Operations

OVERVIEW OF UNIT:

This unit focuses on different strategies for adding and subtracting greater numbers. Students will also focus on collecting data and deciding how best to represent the data collected. As students progress through the unit, they will explore multiplication through various models. Place value is a fundamental principle of mathematics and is used in multiplication. Students will consider multiplication when one of the factors is a multiple of 10. Division is represented by problem contexts where the total is known and either the number of groups or the number of objects in each group is unknown. Students will recognize what information is unknown and use models to find the unknown information. Connecting division and multiplication helps students develop proficiency with the division facts.

Big Ideas

- You can add and subtract whole numbers and decide if an answer is reasonable.
- You can represent and interpret data on tables and graphs.
- You can use multiplication to find how many in all.
- You can use strategies such as skip counting, equal groups, and doubles facts to solve multiplication problems.
- You can use multiplication facts, place value, and properties to solve multiplication problems with multiples of 10.
- You can use division to find how many in each group or how many equal groups.
- You can use strategies such as repeated subtraction, arrays, equal groups, and related multiplication facts to divide.

Essential Questions

- What strategies can be used to add and subtract numbers?
- How can you use the strategy *draw a diagram* to solve one- and two-step addition and subtraction problems?
- How can you draw a bar graph, picture graph, or line plot to show data?
- How can you solve problems using data represented in graphs?
- What strategies can be used to solve multiplication and division problems?
- How can you model and record multiplying 1-digit whole numbers by multiples of 10?
- Why are there rules such as the order of operations?

Objectives

- Students will be able to use strategies to add and subtract numbers.

- Students will be able to use the strategy *draw a diagram* to solve one- and two-step addition and subtraction problems.
- Students will be able to draw a bar graph, picture graph, or line plot to show data.
- Students will be able to solve problems using data represented in graphs.
- Students will be able to use strategies to solve multiplication and division problems.
- Students will be able to multiply 1-digit whole numbers by multiples of 10.
- Students will be able to use order of operations to solve problems.

Assessment

Formative Assessment:

- Lesson quick check
- lesson practice
- mid-chapter checkpoint
- portfolio
- middle-of-year test
- Rocket Math
- Boddle

Summative Assessment:

- Chapter review/test
- chapter test
- performance task assessment
- end-of year-test
- Link It

Benchmark:

- Prerequisite skills inventory
- show what you know
- beginning-of-year test
- Link It

Alternative:

- Modified quizzes and activities
- Performance assessments
- Activity choice board (Google Classroom)

Key Vocabulary

Compatible numbers, estimate, Identity Property of Addition, pattern, round, Bar graph, frequency table, horizontal bar graph, key, line plot, picture graph, scale, vertical bar graph, Equal groups, factor, multiply, product, array, Commutative Property of Multiplication, Identity Property of Multiplication, Zero Property of Multiplication, Multiple, Distributive Property, Associative Property of Multiplication, Pattern, equation, array, Commutative Property of Multiplication, factor, product, Distributive Property, multiple, place value, tens, hundreds, ones, Divide, equal groups, dividend, divisor, quotient, array, inverse operations, related facts, factor, product, Identity Property of Multiplication

Resources & Materials

- Go Math! Teacher Edition Volume 1

Technology Infusion

Teacher Technology:

- Google Classroom
- Chromebooks
- Promethean Board

Student Technology:

- Google Classroom
- Chromebooks
- Promethean Board
- iPads

Activities:

- Think Central games, assignments, and virtual manipulatives
- Google Classroom (math choice boards, instructional videos, discussion questions)
- Boddle assignments
- Rocketmath quizzes

Standard	Standard Description
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

Interdisciplinary Integration

Activities:

- In a combined science and math activity, students will survey classmates about inherited traits. They will graph and analyze the data they collect, discussing observations and trends.

Resources:

- Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html
- Engineering Go For It! - http://egfi-k12.org/
- US Department of Education STEM - http://www.ed.gov/stem
- Intel STEM Resource - http://www.intel.com/content/www/us/en/education/k12/stem.html
- NASA STEM - http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko
- PBS STEM - http://www.pbs.org/teachers/stem/#content
- STEM Works - http://stem-works.com/activities
- What Every Educator Should Know About Using Google by Shell Education
- Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml
- International Literacy Association Read Write Think - http://www.readwritethink.org/

Standard	Standard Description
NJSLS Science 3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

21st Century Life Skills Standards

Activities:

- As students learn new concepts, they will apply their knowledge of these skills to solve real-world problems. They will discuss how knowledge of these concepts could be applied in future careers.

Standard	Student Learning Objectives
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

Careers	
Activities: ● Students will apply knowledge of new mathematical concepts to solve multiple-step 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.

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.
4	Model with mathematics.
5	Use appropriate tools strategically.
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**
3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 × 7as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5 × 7.
3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 ×? = 48, 5 =?÷ 3, 6 × 6 =?.

3.OA.B.5	Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.)3 × 5 × 2 can be found by3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5= 40 and 8 × 2= 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) {Clarification: Students need not use formal terms for these properties).
3.OA.B.6	Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8
3.OA.C.7	With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers
3.OA.D.8	Solve two-step word problems, including problems involving money, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Clarification: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order) (Order of Operations)
3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NBT.A.2	With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3.NBT.A.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80,5 × 60) using strategies based on place value and properties of operations.
3.DL.A.1	Develop data-based questions and decide what data will answer the question. (e.g. “What size shoe does a 3rd grader wear?”, “How many books does a 3rd grader read?”)
3.DL.A.2	Collect student-centered data (e.g. collect data on students’ favorite ice cream flavor) or use existing data to answer data-based questions.
3.DL.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
3.DL.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

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 • 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/ • Intervention 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

Califon Public School
Curriculum

Subject: Math	Grade: 3rd	Unit #: 2	Pacing: 6 weeks

Unit Title: Fractions

OVERVIEW OF UNIT:

In this unit, students will be exposed to different types of fraction models to reflect specific situations. They will learn strategies to compare and order fractions.

Big Ideas

- You can use fractions to describe how much or how many.
- You can use strategies to compare and order fractions.

Essential Questions

- What are equal parts of a whole?
- Why do you need to know how to make equal shares?
- What do the top and bottom numbers of a fraction tell?
- How does a fraction name part of a whole?
- How can you represent and name fractions on a number line?
- When might you use a fraction greater than 1 or a whole number?
- How can a fraction name part of a group?
- How can a fraction tell how many are in part of a group?
- How can you use the strategy *draw a diagram* to solve fraction problems?
- How can you use the strategy *act it out* to solve comparison problems?
- How can you compare fractions with the same denominator?
- How can you compare fractions with the same numerator?
- What strategies can you use to compare fractions?
- How can you compare and order fractions?
- How can you use models to find equivalent fractions?
- How can you use models to name equivalent fractions?

Objectives

- Students will be able to identify equal parts of a whole.
- Students will be able to determine how to make equal shares.
- Students will be able to relate parts of a fraction as a part of a whole.
- Students will be able to describe when to use a fraction greater than 1 or a whole number.
- Students will be able to use the strategy *draw a diagram* to solve fraction problems.
- Students will be able to use the strategy *act it out* to solve comparison problems.
- Students will be able to compare fractions with the same denominator or numerator.

- Students will be able to compare and order fractions.
- Students will be able to use models to find and name equivalent fractions.

Assessment

Formative Assessment:

- Lesson quick check
- lesson practice
- mid-chapter checkpoint
- portfolio
- middle-of-year test
- Rocket Math
- Boddle

Summative Assessment:

- Chapter review/test
- chapter test
- performance task assessment
- end-of year-test
- Link It

Benchmark:

- Prerequisite skills inventory
- show what you know
- beginning-of-year test
- Link It

Alternative:

- Modified quizzes and activities
- Performance assessments
- Activity choice board (Google Classroom)

Key Vocabulary

Eighths, equal parts, fourths, halves, sixths, thirds, whole, fraction, unit fraction, denominator, numerator, fraction greater than 1, Compare, equal to (=), greater than (>), less than (<), denominator, numerator, order, equivalent, equivalent fractions

Resources & Materials

- Houghton Mifflin Harcourt, Go Math! Teacher Edition

Technology Infusion

Teacher Technology:

- Google Classroom
- Chromebooks
- Promethean Board

Student Technology:

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- iPads

Activities:

- Think Central games, assignments, and virtual manipulatives
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Standard	Standard Description
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

Interdisciplinary Integration

Activities:

- Students will read the story "James' Frames" and solve problems involving measurement that are presented with the characters in the book.

Resources:

- Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html
- Engineering Go For It! - http://egfi-k12.org/
- US Department of Education STEM - http://www.ed.gov/stem
- Intel STEM Resource - http://www.intel.com/content/www/us/en/education/k12/stem.html
- NASA STEM - http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko
- PBS STEM - http://www.pbs.org/teachers/stem/#content
- STEM Works - http://stem-works.com/activities
- What Every Educator Should Know About Using Google by Shell Education
- Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml
- International Literacy Association Read Write Think - http://www.readwritethink.org/

Standard	Standard Description
NJSLS-ELA W.RW.3.7	Engage in independent and task-based writing for both short and extended periods of time, producing written work routinely.

21st Century Life Skills Standards

Activities:

- As students learn new concepts, they will apply their knowledge of these skills to solve real-world problems. They will discuss how knowledge of these concepts could be applied in future careers.

Standard	Student Learning Objectives
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

Careers

Activities:

- Students will apply knowledge of new mathematical concepts to solve multiple-step problems.

Practice	Description
Utilize critical thinking to make sense of	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

problems and persevere in solving them.	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.

Standards for Mathematical Practice	
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Standards	
Standard #	**Standard Description**
3.NF.A.1	Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. For example: If a rectangle (i.e. the whole) is partitioned into 3 equal parts, each part is $\frac{1}{3}$. Two of those parts would be $\frac{2}{3}$.
3.NF.A.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram
3.NF.A.2a	Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. For example, partition the number line from 0 to 1 into 3 equal parts, represent $\frac{1}{3}$ on the number line and show that each part has a size $\frac{1}{3}$.
3.NF.A.2b	Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.
3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

3.NF.A.3a	Understand two fractions as equivalent (equal) if they are the same size. Understand two fractions as equivalent if they are located at the same point on a number line
3.NF.A.3b	Recognize and generate simple equivalent fractions by reasoning about their size, (e.g., $\frac{1}{2}=\frac{2}{4}, \frac{4}{6}=\frac{2}{3}$). Explain why the fractions are equivalent with the support of a visual fraction model.
3.NF.A.3c	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3=\frac{3}{1}$; recognize that $\frac{6}{1}=6$; locate $\frac{4}{4}$ and 1 at the same point on a number line diagram.
3.NF.A.3d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions with the support of a visual fraction model.

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/
- Intervention 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: 3rd	Unit #: 3	Pacing: 7 weeks

Unit Title: Time & Measurement

OVERVIEW OF UNIT:

Engaging in measurement requires students to reason abstractly and quantitatively. In this unit, students will understand that each measurement attribute (e.g. time, length, mass, etc.) has its own units for obtaining and recording a quantitative measurement. Area is the amount of space taken up by a two-dimensional object or shape, and perimeter is the distance or length around a two-dimensional object or shape. In this unit, students will solve problems involving area and perimeter.

Big Ideas

- You can tell time and use measurement to describe the size of something.
- You can solve problems involving area and perimeter.

Essential Questions

- How can you tell time to the nearest minute?
- How can you generate measurement data and show the data on a line plot?
- How can you estimate and measure liquid volume in metric units?
- How can you estimate and measure mass in metric units?
- How can you use models to solve liquid volume and mass problems?
- How can you find the perimeter?
- How is finding the area of a figure different from finding the perimeter of a figure?
- How can you find the area of a plane figure?

Objectives

- Students will be able to tell time to the nearest minute.
- Students will be able to generate measurement data and show the data on a line plot.
- Students will be able to estimate and measure mass and liquid volume in metric units.
- Students will be able to use models to solve liquid volume and mass problems.
- Students will be able to find the perimeter and area of a plane figure.

Assessment

Formative Assessment:

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- mid-chapter checkpoint
- portfolio

Benchmark:

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Summative Assessment:

- Chapter review/test
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Alternative:

- Modified quizzes and activities
- Performance assessments
- Activity choice board (Google Classroom)

Key Vocabulary
Minute, analog clock, digital clock, half hour, quarter hour, hour, A.M., midnight, noon, P.M., inch, liquid volume, liter (L), gram (g), kilogram (kg), mass, Perimeter, area, square unit, unit square, multiplication, repeated addition, pattern, distributive property

Resources & Materials
• Go Math! Teacher Edition Chapter 10 Time, Length, Liquid Volume, and Mass • Go Math! Teacher Edition Chapter 11 Area and Perimeter

Technology Infusion

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Activities:

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8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

Interdisciplinary Integration	
Activities: ● Students will read the story "James' Frames" and solve problems involving measurement that are presented with the characters in the book. **Resources:** ● Teacher Vision Cross-Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html ● Engineering Go For It! - http://egfi-k12.org/ ● US Department of Education STEM - http://www.ed.gov/stem ● Intel STEM Resource - http://www.intel.com/content/www/us/en/education/k12/stem.html ● NASA STEM - http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko ● PBS STEM - http://www.pbs.org/teachers/stem/#content ● STEM Works - http://stem-works.com/activities ● What Every Educator Should Know About Using Google by Shell Education ● Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml ● International Literacy Association Read Write Think - http://www.readwritethink.org/	
Standard	**Standard Description**
NJSLS-ELA W.RW.3.7	Engage in independent and task-based writing for both short and extended periods of time, producing written work routinely.

21st Century Life Skills Standards	
Activities: ● As students learn new concepts, they will apply their knowledge of these skills to solve real-world problems. They will discuss how knowledge of these concepts could be applied in future careers.	
Standard	**Student Learning Objectives**
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

Careers	
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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.

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Standards	
Standard #	**Standard Description**
3.M.A.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.M.A.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: “Measure and estimate liquid volumes and masses” excludes compound units such as cm3 and finding the geometric volume of a container. “Multiplying to solve one-step word problems” excludes multiplicative comparison problems (problems involving “times as much”; See Glossary, Tables 2a-2d))
3.M.B.3	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3.M.B.3a	A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area
3.M.B.3b	A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
3.M.B.4	Measure areas by counting unit squares (square cm, square m, square in, square ft, and nonstandard units).
3.M.B.5	Relate area to the operations of multiplication and addition.
3.M.B.5a	Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.
3.M.B.5b	Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning
3.M.B.5c	Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths $a$and $b + c$is the sum of $a \times b$and$a \times c$. Use area models to represent the distributive property in mathematical reasoning.

3.M.B.5d	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
3.M.C.6	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

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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

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Enrichment

- Process should be modified: higher order thinking skills, open-ended thinking, discovery
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Califon Public School
Curriculum

Subject: Math	Grade: 3rd	Unit #: 4	Pacing: 4 weeks

Unit Title: Geometry

OVERVIEW OF UNIT:

Seeing examples and non-examples of shapes, with an emphasis on discussing the attributes of shapes, helps students with classification. In this unit, students will use a variety of strategies to describe and classify two-dimensional shapes.

Big Ideas

- You can describe and classify two-dimensional shapes.

Essential Questions

- What are some ways to describe two-dimensional shapes?
- How can you describe angles in plane shapes?
- How can you use line segments and angles to make polygons?
- How can you describe line segments that are sides of polygons?
- How can you use sides and angles to help you describe quadrilaterals?
- How can you draw quadrilaterals?
- How can you use sides and angles to help you describe triangles?
- How can you use the strategy *draw a diagram* to classify plane shapes?
- How can you divide shapes into parts with equal areas and write the area as a unit fraction of the whole?

Objectives

- Students will be able to describe two-dimensional shapes, angles, and line segments.
- Students will be able to identify, describe, and draw quadrilaterals.
- Students will be able to use sides and angles to describe triangles.
- Students will be able to classify plane shapes.
- Students will be able to divide shapes into parts with equal areas and write the area as a unit fraction of the whole.

Assessment

Formative Assessment:

- Lesson quick check
- lesson practice
- mid-chapter checkpoint
- portfolio

Benchmark:

- Prerequisite skills inventory
- show what you know
- beginning-of-year test
- Link It

- middle-of-year test
- Rocket Math
- Boddle

Summative Assessment:

- Chapter review/test
- chapter test
- performance task assessment
- end-of year-test
- Link It

Alternative:

- Modified quizzes and activities
- Performance assessments
- Activity choice board (Google Classroom)

Key Vocabulary
Closed shape, endpoint, line, line segment, open shape, plane shape, point, ray, two-dimensional shape, angle, right angle, vertex, decagon, hexagon, octagon, pentagon, polygon, quadrilateral, side, triangle, intersecting lines, parallel lines, perpendicular lines, rectangle, rhombus, square, trapezoid, Venn diagram, area, unit fraction

Resources & Materials
● Go Math! Teacher Edition Chapter 12 Geometry

Technology Infusion

Teacher Technology:

- Google Classroom
- Chromebooks
- Promethean Board

Student Technology:

- Google Classroom
- Chromebooks
- Promethean Board
- iPads

Activities:

- Think Central games, assignments, and virtual manipulatives
- Google Classroom (math choice boards, instructional videos, discussion questions)
- Boddle assignments
- Rocketmath quizzes

Standard	Standard Description
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

Interdisciplinary Integration	
Activities: ● Students will study famous artists such as Picasso and Kandinsky who used geometric shapes in their art. Students will examine the history of their art and create geometric art of their own. **Resources:** ● Teacher Vision Cross Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html ● Engineering Go For It! - http://egfi-k12.org/ ● US Department of Education STEM - http://www.ed.gov/stem ● Intel STEM Resource - http://www.intel.com/content/www/us/en/education/k12/stem.html ● NASA STEM - http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko ● PBS STEM - http://www.pbs.org/teachers/stem/#content ● STEM Works - http://stem-works.com/activities ● What Every Educator Should Know About Using Google by Shell Education ● Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml ● International Literacy Association Read Write Think - http://www.readwritethink.org/	
Standard	**Standard Description**
1.2.5.Pr4c	Create media artworks through integration of multiple contents and forms

21st Century Life Skills Standards	
Activities: ● As students learn new concepts, they will apply their knowledge of these skills to solve real-world problems. They will discuss how knowledge of these concepts could be applied in future careers.	
Standard	**Student Learning Objectives**
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

Careers	
Activities: ● Students will apply knowledge of new mathematical concepts to solve multiple-step 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.

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.
4	Model with mathematics.
5	Use appropriate tools strategically.
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**
3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.

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