Califon Public School
Curriculum

Subject:	Grade:	Unit #:	Pacing:
Math	5th	1	16 weeks

Unit Title: Fluency with Whole Numbers and Decimals

OVERVIEW OF UNIT:

In this unit, students will extend division to two-digit divisors, integrate decimal fractions into the place value system, and develop an understanding of operations with decimals to the hundredths and develop fluency with whole number and decimal operations.

Big Ideas

- One representation may sometimes be more helpful than another, and, used together, multiple representations give a fuller understanding of a problem.
- A quantity can be represented numerically in various ways. Problem-solving depends upon choosing ways wisely.
- Numerical fluency includes both the understanding of and the ability to appropriately use numbers.
- Computational fluency includes understanding not only the meaning but also the appropriate use of numerical operations.
- The magnitude of numbers affects the outcome of operations on them.
- In many cases, there are multiple algorithms for finding mathematical solutions, and those algorithms are frequently associated with different cultures.

Essential Questions

- How can we use the base ten number system to make sense of the world around us?
- How do you divide numbers?
- How do you add, subtract, multiply and divide decimals?
- How can we decide when to use an exact answer and when to use an estimate?

Objectives

- Students will be able to use the base ten number system to make sense of the world around us.
- Students will be able to divide numbers.
- Students will be able to add, subtract, multiply and divide decimals.
- Students will be able to decide when to use an exact answer and when to use an estimate.

Assessment

Formative Assessment:

- Homework
- Class work
- Exit Slips

Benchmark:

- LinkIt! Benchmark Assessment

Alternative:

- Observations
- Class Discussions

Summative Assessment:

- Go! Math Tests and Quizzes
- Performance Task
- Performance Task
- Modified Tests Independently Developed by Teacher
- Projects

Key Vocabulary	
• Period	• Algorithm
• Distributive Property	• Dividend
• Base	• Parenthesis
• Exponent	• Brackets
• Divisor	• Thousandth

Resources & Materials

- Textbook (Go! Math Grade 5)
- Promethean Board
- Calculator
- Teacher-made materials
- www.ThinkCentral.com

Technology Infusion

Teacher Technology:

- Promethean Board
- Chromebook
- www.ThinkCentral.com

Student Technology:

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Activities:

- Students will manipulate the interactive lessons on the Promethean Board.
- Students will use their Chromebooks to access www.ThinkCentral.com to use manipulatives, complete assignments and use the interactive adaptive mode.

Standard	Standard Description
8.2.5.ITH.3	Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use.

Interdisciplinary Integration	
Activities: ● Students will complete a word problem of the day and explain their thinking and rationale for their answers through a written response. **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.5.7	Write routinely over extended time frames (time for research and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

21st Century Life Skills Standards	
Activities: ● Students will work cooperatively to unlock problems and share and show amongst the groups.	
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 complete a word problem of the day and explain their thinking and rationale for their answers.	
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.

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**
5.NBT.A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and of what it represents in the place to its left.
5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.A.3	Read, write, and compare decimals to thousandths.
5.NBT.A.3a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$
5.NBT.A.3b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons
5.NBT.A.4	Use place value understanding to round decimals to any place
5.NBT.B.5	With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm
5.NBT.B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and twodigit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the

	relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

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)
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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 • 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: 5th	Unit #: 2	Pacing: 12 weeks

Unit Title: Operations with Fractions

OVERVIEW OF UNIT:

To understand fractions, students must know that fractions are division (the numerator is divided by the denominator). Students will use equivalent fractions as a strategy to add and subtract. Students will then apply and extend their previous understandings of multiplication using fractions.

Big Ideas

- Fractions are division.
- The magnitude of numbers affects the outcome of operations on them.
- Context is critical when using estimation.
- Multiplication of fractions is used to scale.
- Fractions are decimals.

Essential Questions

- How do operations affect numbers?
- How does the value of the numbers we multiply affect the product?
- How can we decide when to use an exact answer and when to use an estimate?
- What are fractions?

Objectives

- Students will be able to interpret how operations affect numbers.
- Students will be able to decide when to use an exact answer and when to use an estimate.
- Students will be able to relate the value of the numbers we multiply affect the product.
- Students will define fractions.

Assessment

Formative Assessment:
- Homework
- Class work
- Exit Slips
- Observations
- Class Discussions

Summative Assessment:
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Benchmark:
- LinkIt! Benchmark Assessment

Alternative:
- Performance Task
- Modified Tests Independently Developed by Teacher
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- Performance Task

Key Vocabulary	
• equivalent	• numerator
• Greatest Common Factor (GCF)	• denominator
• Lowest Common Multiple (LCM)	• proper fractions
• whole number	• improper fractions
• benchmark fraction	

Resources & Materials

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Activities:

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Resources:

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- 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/

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21st Century Life Skills Standards

Activities:

- Students will work cooperatively to unlock problems and share and show amongst the groups.

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Careers

Activities:

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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	
Standard #	**Standard Description**
5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12 . (In general, $a/b + c/d = (ad+bc)/bd$).
5.NF.A.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2 .
5.NF.A.3	Interpret a fraction as division of the numerator by the denominator (i.e., $a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4 . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
5.NF.A.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.A.4a	Interpret the product $\left(\frac{a}{b}\right) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $\left(\frac{2}{3}\right) \times 4 = \frac{8}{3}$, and create a story context for this equation. Do the same with $\left(\frac{2}{3}\right) \times \left(\frac{4}{5}\right) = \frac{8}{15}$. (In general, $\left(\frac{a}{b}\right) \times \left(\frac{c}{d}\right) = \left(\frac{ab}{bd}\right)$).
5.NF.B.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas
5.NF.B.5	Interpret multiplication as scaling (resizing), by:

5.NF.B.5a	Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
5.NF.B.5b	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.
5.NF.B.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.NF.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
5.NF.B.7a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $\left(\frac{1}{3}\right) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $\left(\frac{1}{3}\right) \div 4 = \frac{1}{12}$ because $\frac{1}{12} \times 4 = \frac{1}{3}$.
5.NF.B.7b	Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div \left(\frac{1}{5}\right)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div \left(\frac{1}{5}\right) = 20$ because $20 \times \left(\frac{1}{5}\right) = 4$.
5.NF.B.7c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb. of chocolate equally? How many $\frac{1}{3}$-cup servings are in 2 cups of raisins?

Differentiation
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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
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- Increase one-to-one time
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- Use online resources for skill-building
- Provide teacher notes
- Use collaborative grouping strategies, such as small groups
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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
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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: 5th	Unit #: 3	Pacing: 12 weeks

Unit Title: Geometry & Measurement

OVERVIEW OF UNIT:

Students will demonstrate an understanding of the concepts of volume, converting measurements, and representing data.

Big Ideas

- Everyday objects have a variety of attributes, each of which can be measured in many ways.
- What we measure affects how we measure it.
- Measurements can be used to describe, compare, and make sense of phenomena.
- Geometric properties can be used to construct geometric figures.
- Geometric relationships provide a means to make sense of a variety of phenomena.

Essential Questions

- How can measurement be used to solve problems?
- What is a “cubic unit”?
- How are mathematical models used to describe the relationships between two quantities?
- How can spatial relationships be described by careful use of geometric language?
- How do we classify geometric shapes?

Objectives

- Students will be able to use measurement to solve problems.
- Students will be able to create mathematical models to describe the relationships between two quantities.
- Students will be able to define a “cubic unit."
- Students will be able to use geometric language to describe spatial relationships.
- Students will classify geometric shapes.

Assessment

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Alternative:

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Key Vocabulary	
volume	prism
rectangular	length
base area	width
formula	cubic unit
height	line plot
coordinate	data
coordinate	polygon
coordinate grid	rectangle
X-axis	right angle
Y-axis	parallelogram
ordered pair	quadrilateral
interval	square
spatial relationship	

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- 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
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Standards	
Standard #	**Standard Description**
5.M.A.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
5.M.B.2	Recognize volume as an attribute of solid figures and understand concepts of volume measurement
5.M.B.2a	A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
5.M.B.2b	A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units
5.M.B.3	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and nonstandard units
5.M.B.4	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
5.M.B.4a	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
5.M.B.4b	Apply the formulas $V = l \times w \times h$and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.

5.M.B.4c	Recognize volume as additive. Find volumes of solid figures composed of two nonoverlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
5.DL.A.1	Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.
5.DL.A.2	Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g. chart, storyboard, video presentation).
5.DL.A.3	Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).
5.DL.A.4	Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples.
5.DL.B.5	Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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