1st 9 Weeks Pacing Guide
Fourth Grade Math

| Common Core State Standards | Objective/Skill (DOK) | "I Can" Statements (Knowledge \& Skills) | Curriculum Materials \& Resources/Comments | Vocabulary, Signs, \& Symbols | Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.0A. 1 <br> Interpret a multiplication equation as a comparison, e.g., interpret 35 $=5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. | 4.1i <br> Recall multiplication and division facts. | - I can recognize multiplication/division as inverse operations. <br> - I can memorize the product of two whole numbers through twelve times twelve. <br> - I can recognize multiplication strategies. <br> - I can write a multiplication equation based on given data. | Envision Math Topic 1 | product <br> dividend <br> divisor <br> quotient <br> fact family <br> inverse |  |
| 4.OA. 2 <br> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison | 4.2b <br> Determine the value of variable in equations; justify the process used to make the determination. (DOK 2) | - I can identify key words and relate words to operations. <br> - I can solve for variables by balancing both sides of the equation (what you do to one side you must do to the other side)using inverse operations. <br> - I can write an equation using a variable to represent the unknown. | Envision Math Topic 1 | variable <br> total <br> sum <br> equation <br> product <br> quotient <br> remainder <br> symbol <br> inverse |  |
| 4.0A. 3 <br> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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 |  | - I can justify my answers using mental math and estimation. | Envision Math Topic 1 Envision Math Topic 2 Envision Math Topic 4 Envision Math Topic 5 | factor product quotient |  |


| 4.OA. 4 |
| :--- |
| Find all factor pairs for a whole | number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range $1-100$ is a multiple of a given one-digit number. Determine whether a given whole number in the range $1-100$ is prime or composite.

### 4.11

Model factors and multiples of whole numbers. (DOK 1)

- I can recognize prime and composite numbers.
- I can find the factors of a given number.
- I can check to see if a given whole number is a multiple of numbers one through 9.


## $4.2 a$

Analyze a given numeric pattern and generate a similar pattern. (DOK 2) that follows a given rule.

- I can generate a number or shaper pattern

Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.
4.NBT. 1
Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right For example, recognize that 700 $70=10$ by applying concepts of place value and division.

- I can identify a number or shape pattern Envision Math Topic 1 generate that follows a given rule.
- I can identify and extend patterns used in a set of numbers.
- I can identify and explain other features of my pattern
- I can identify place values up to one million.
- I can use multiplication by a power of ten to determine the value of a digit in a multi-digit whole number.


## 4.NBT. 2 4.1

Read and write multi-digit whole Compose and decompose five-digit numbers numbers using base-ten numerals, and decimal numbers through hundredths number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using > =, and < symbols to record the results of comparisons.
with representations in words, physical models, and expanded and standard forms. (DOK 1)
(FOCUS ON WHOLE NUMBERS)

|  |
| :--- |
|  |
| 4.NBT.3 |
| Use place value understanding to | 4.1h

Use place value understanding to Estimate products and quotients of whole round multi-digit whole numbers numbers to include strategies such as to any place. rounding. (DOK 2

- I can read and write numbers in standard Envision Math Topic 3 form up to ten thousand.
- I can read and write numbers in expanded form up to ten thousand. Place Value Power points
- I can compare two numbers with digits uphttp://math.pppst.com/placeval digit to ten thousand and identify whether they ues.html ones $\begin{array}{ll}\text { are greater than, less than, or equal to } & \text { tens }\end{array}$ are greater than, less than, or equal to another number
- I can identify the steps in rounding numbers.
- I can round numbers up to to millions place.
- I can round two-digit factors to produce an estimated product.
4.NBT. 4
Fluently add and subtract multidigit whole numbers using the standard algorithm.


## 4.1a

Add and subtract up to five-digit whole numbers with and without regrouping. (DOK 1)
$\left.\begin{array}{|l|l|l|l|l}\text { standard algorithm. } \\ \text { numbers with and without regrouping. } \\ \text { (DOK 1) }\end{array}\right)$

Multiply a whole number of up to Explain the properties of the basic four digits by a one-digit whole operations using models, numbers, and number, and multiply two twodigit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
variables:
*Zero property of multiplication
*Associative properties of addition and multiplication
*Commutative properties of addition and multiplication
*Identity properties of addition and multiplication
*Distributive properties of multiplication over addition and subtraction (DOK 2)

- I can add numbers up to the ten thousandsEnvision Math Topic 4 place.
- I can subtract up to five-digit whole numbers (to the nearest ten thousands place) with and without regrouping.

Virtual Addition and Subtraction Manipulatives
addend addend sum http://nlvm.usu.edu/en/nav/gra regroup de_g_2.html

Addition and Subtraction Practice Problems
http://studyjams.scholastic.co m/studyjams/index.htm

Addition and Subtraction Games
http://www.mathchimp.com/4t hGrade.php
http://www.math-
play.com/4th-grade-mathgames.html
http://www.kidsnumbers.com/
http://www.mathblaster.com/

- I can classify examples of problems underEnvision Math Topic 5 the appropriate property.
- I recognize and construct models of each http://studyjams.scholastic.co property by using concrete models to $\underline{m}$ show examples.
- I can multiply a 2 -digit number by a 1 - http://www.aaamath.com/pro7 digit number.
- I can illustrate and explain multiplication using rectangular arrays and area models. Online Game for Independent
- I can multiply two-digit by two-digit.

Practice
http://www.math-
play.com/multiplicationgames.html

## 2nd 9 Weeks Pacing Guide

Fourth Grade Math

| Common Core State Standards | Objective/Skill (DOK) | "I Can" Statements (Knowledge \& Skills) | Curriculum Materials \& Resources/Comments | Vocabulary, Signs, \& Symbols | Assessment |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.OA. 2 <br> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison | 4.2b <br> Determine the value of variable in equations; justify the process used to make the determination. (DOK 2) | - I can identify key words and relate words to operations. <br> - I can solve for variables by balancing both sides of the equation (what you do to one side you must do to the other side)using inverse operations. <br> - I can write an equation using a variable to represent the unknown. | Envision Math Topic 9 | variable <br> total <br> sum <br> equation <br> product <br> quotient <br> remainder <br> symbol <br> inverse |  |
| 4.OA. 3 <br> Solve posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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 roundingmultistep word problems |  | - I can justify my answers using mental math and estimation. | Envision Math Topic 6 Envision Math Topic 7 Envision Math Topic 8 Envision Math Topic 9 Envision Math Topic 10 | factor product quotient |  |
| 4.OA. 4 <br> Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range $1-100$ is a multiple of a given one-digit number. Determine whether a given whole number in the range $1-100$ is prime or composite. | 4.11 Model factors and multiples of whole numbers. (DOK 1) | - I can recognize prime and composite numbers. <br> - I can find the factors of a given number. <br> - I can check to see if a given whole number is a multiple of numbers one through 9. | Envision Math Topic 11 | prime <br> composite <br> factor <br> multiple <br> factor pair <br> range <br> digit |  |


| 4.0A. 5 <br> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1 , generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. | 4.2a <br> Analyze a given numeric pattern and generate a similar pattern. (DOK 2) | - I can identify a number or shape pattern that follows a given rule. <br> - I can generate a number or shaper pattern that follows a given rule. <br> - I can identify and extend patterns used in a set of numbers. <br> - I can identify and explain other features of my pattern. | Envision Math Topic 11 | generate <br> pattern <br> rule <br> feature <br> analyze |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.NBT. 1 <br> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div$ $70=10$ by applying concepts of place value and division. |  | - I can identify place values up to one million. <br> - I can use multiplication by a power of ten to determine the value of a digit in a multi-digit whole number. <br> - I can multiply by multiples of 10 an d100 | Envision Math Topic 10 | whole number place value base ten system |  |
| 4.NBT. 3 <br> Use place value understanding to round multi-digit whole numbers to any place. | 4.1h <br> Estimate products and quotients of whole numbers to include strategies such as rounding. (DOK 2 | - I can identify the steps in rounding numbers. <br> - I can round numbers up to to millions place. <br> - I can round two-digit factors to produce an estimated product. | Envision Math Topic 6 Envision Math Topic 7 | round estimate whole number place value one tens hundreds thousands ten thousands hundred thousands millions |  |


| 4.NBT. 5 <br> Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | 4.2 d <br> Explain the properties of the basic operations using models, numbers, and variables: <br> *Zero property of multiplication <br> *Associative properties of addition and multiplication <br> *Commutative properties of addition and multiplication <br> *Identity properties of addition and multiplication <br> *Distributive properties of multiplication over addition and subtraction (DOK 2) | - I can classify examples of problems under the appropriate property. <br> - I recognize and construct models of each property by using concrete models to show examples. <br> - I can multiply a 3 and 4-digit number by a 1-digit number. <br> - I can illustrate and explain multiplication using rectangular arrays and area models. <br> - I can multiply two-digit by two-digit. | Envision Math Topic 6 <br> Envision Math Topic 7 <br> Envision Math Topic 8 <br> Envision Math Topic 9 <br> Envision Math Topic 10 <br> http://studyjams.scholastic.com <br> http://www.aaamath.com/pro74b- <br> propertiesmult.html <br> Online Game for Independent Practice http://www.math- <br> play.com/multiplication-games.html | variable associative property commutative property zero property identity property distributive property product |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.NBT. 6 <br> Find whole-number quotients and remainders with up to four-digit dividends and one-digit 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. | 4.1d <br> Explain two or more methods of dividing four=digit dividends by one- two- digit divisors, with and without remainders, and justify the processes. (DOK 2) | - I can divide to solve word problems. <br> - I can divide a whole number up to four digits by a one digit divisor with/without regrouping. <br> - I can label divisor, dividend, quotient, and remainder of a division problem. <br> - I can identify steps of solving a division problem. <br> - I can use inverse operations to justify my answer. | Envision Math Topic 9 Envision Math Topic 10 | division divisor dividend quotient remainder inverse |  |
| 4.NF. 1 <br> Explain why a fraction $\mathrm{a} / \mathrm{b}$ is equivalent to a fraction $(\mathrm{n} \times \mathrm{a}) /(\mathrm{n} \times$ b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. | $41 f$ <br> Model and identify equivalent fractions. (DOK <br> 2) | - I can use visual representations to model fractions. <br> - I can recognize and generate equivalent fractions using multiplication and division. <br> - I can reduce fractions to simplest form. <br> - I can cross-multiply to determine if fractions are equivalent. | Envision Math Topic 11 | equivalent numerator denominator visual models generate unit |  |

## 4.NF. 2

Compare two fractions with different numerators and creating common denominators or numerators, or by comparing to a benchmark fraction such as $1 / 2$. Recognize that comparisons are valid only when the two
ractions refer to the same
whole. Record the results of
comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

- I can compare fractions that are parts of the Envision Math Topic 11 same whole using symbols $>$, <, or $=$
- I can justify my comparison of two fractions.
- I can compare two fractions by reasoning about their location on a number line.
benchmark
fraction
compare
numerator
numerator


## justify

## reater than

less than <

Fourth Grade Math

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| 4.NF.3a <br> Understand a fraction $\mathrm{a} / \mathrm{b}$ with a $>$ 1 as a sum of fractions $1 / b$. <br> a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. <br> 4.NF.3b <br> Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3 / 8=1 / 8+1 / 8+1 / 8$; $3 / 8=1 / 8+2 / 8$ <br> 4.NF.3c <br> c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. <br> 4.NF.3d <br> d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. | 4.1e <br> Add and subtract fractions with like denominators. (DOK 1) | - I can create common denominators to compare two fractions with different numerators and denominators. <br> - I can add and subtract fractions with like denominators with/without using models. <br> - I can distinguish between a numerator and a denominator. | Envision Math Topic 12 | joining separating unit fractions whole numerator denominator compare |  |

## 4.NF. 4

Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
a. Understand a fraction $\mathrm{a} / \mathrm{b}$ as a multiple of $1 / b$. For example, use a visual fraction model to represent $5 / 4$ as the product $5 \times$ ( $1 / 4$ ), recording the conclusion by the equation $5 / 4=5 \times(1 / 4)$.
b. Understand a multiple of $\mathrm{a} / \mathrm{b}$ as a multiple of $1 / \mathrm{b}$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times(2 / 5)$ as $6 \times$ ( $1 / 5$ ), recognizing this product as 6/5. (In general, $\mathrm{n} \times(\mathrm{a} / \mathrm{b})=(\mathrm{n} \times$ a)/b.)
c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3 / 8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

- I can multiply a whole number by a fraction by changing the whole number into a fraction.
- I can create a fraction from a whole number by placing the whole number over 1.
- I can use models to represent a fraction times a whole number.
- I can solve multiplication problems by multiplying the whole number by the numerator.
- I can solve multiplication word problems involving fractions and whole numbers using visual models.
- I can solve multiplication word problems involving fractions and whole numbers using equations.
multiplication multiply multiple whole number fraction numerator denominator fraction model equation unit fraction word problem product compose decompose

| 4.NF. 5 <br> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.4 For example, express $3 / 10$ as $30 / 100$, and add $3 / 10+4 / 100=34 / 100$. |  | - I can use base ten models to represent fractions. <br> - I can recognize that two fractions with denominators of 10 and 100 can be equivalent. <br> - I can add two fractions with denominators of 10 and 100 . <br> - I can convert unlike denominators to like denominators and add fractions. | Envision Math Topic 13 | fraction <br> equivalent <br> numerator <br> denominator <br> add <br> subtract <br> tenths <br> hundredths <br> decimals |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.NF. 6 <br> Use decimal notation for fractions with denominators 10 or 100 . For example, rewrite 0.62 as $62 / 100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram. | 4.1g <br> Represent equivalence relationships between fractions and decimals using concrete materials, diagrams, or other models. (DOK 1) | - I can convert fractions to decimals. <br> - I can convert decimals to fractions. <br> - I can recognize equivalent fractions using visual models. <br> - I can generate equivalent fractions using visual models or pictures. <br> - I can explain why two fractions are equivalent using visual models. <br> - I can determine fraction and decimal part based on a physical representation or model. | Envision Math Topic 13 | fraction decimal notation denominator numerator hundredths tenths compare convert equivalent |  |
| 4.NF. 7 <br> Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. | 4.1j <br> Compose and decompose five-digit numbers and decimal numbers through hundredths with representations in words, physical models, and expanded and standard forms. <br> (DOK 1) <br> (FOCUS ON DECIMALS) <br> 4.1b <br> Add and subtract decimals through <br> hundredths. (DOK 1) | - I can read and write decimal numbers through hundredths. <br> - I can compare two numbers with decimals through hundredths and identify whether they are greater than, less than, or equal to another number. <br> - I can add decimals through hundredths. <br> - I can subtract decimals through hundredths. | Envision Math Topic 13 <br> Model how to shade grids and use decimal place-value charts to write decimal numbers in standard, expanded, and word forms. http://www.superteacherworksheets.co m/decimals.html | decimal point tenths hundredths greater than less than equal to compare equivalent whole |  |


| 4.MD. 1 <br> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml ; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a twocolumn table. For example, know that 1 ft is 12 times as long as 1 in . Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ... | 4.4d <br> Use appropriate tools to determine, estimate, and compare units for measurement of weight/mass, area, size of angle, temperature, length, distance, and volume in English and metric systems and time in real-life situations. | - I can read a protractor. <br> - I can measure angles in whole number degrees using a protractor. <br> - I can sketch angles with a given measurement. <br> - I can determine the appropriate units of measurements. <br> - I can identify various measurement systems and how they are used in real-life situations. | Envision Math Topic 14 | protractor <br> acute <br> right <br> obtuse <br> degrees <br> measurement |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.MD. 2 <br> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. |  | - I can solve word problems involving measurements. <br> - I can represent measurement quantities using a number line diagram. | Envision Math Topic 13 <br> Envision Math Topic 14 | volume mass unit feet inch convert |  |

$4^{\text {th }} 9$ Weeks Pacing Guide
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| :---: | :---: | :---: | :---: | :---: | :---: |
| 4.MD. 2 <br> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. |  | - I can solve word problems involving measurements. <br> - I can represent measurement quantities using a number line diagram. | Envision Math Topic 15 | volume mass unit feet inch convert |  |
| 4.MD. 3 <br> Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. | 4.4c <br> Describe relationships of rectangular area to numerical multiplication. <br> (DOK 2) | - I can calculate the area of a rectangle using the formula $A=L \times W$. <br> - I can apply the area and perimeter formula to solve real world problems. <br> - I can calculate the perimeter of a rectangle using the formula $\begin{aligned} & \mathrm{P}=\mathrm{S}+\mathrm{S}+\mathrm{S}+\mathrm{S} \text { or } \mathrm{P}=2 \mathrm{~S}+2 \mathrm{~S} \text { or } \\ & \mathrm{P}=2 \mathrm{~L}+2 \mathrm{~W} \end{aligned}$ | Envision Math Topic 15 | area perimeter formula length lidth |  |


| 4.MD. $\mathbf{4}$ |  |
| :--- | :--- |
| Make a line plot to display a data set | 4.5a |
| Draw, label, and interpret bar graphs, line graphs, |  | of measurements in fractions of a and stem-and-leaf plots.

unit ( $1 / 2,1 / 4,1 / 8$ ). Solve problems
unit (1/2, $1 / 4,1 / 8)$. Solve problems (DOK 2)
involving addition and subtraction of
presented in line plots. For example, $\begin{aligned} & \text { f.5c } \\ & \text { Compare data and interpret quantities }\end{aligned}$
from a line plot find and interpret the represented on tables and graphs including line difference in length between the graphs, bar graphs, frequency tables, and stemlongest and shortest specimens in an and-leaf plots to make predictions and solve insect collection. problems based on the information. (DOK 3)

## 4.MD. 5

Recognize angles as geometric
Identify and analyze the relationships between shapes that are formed wherever two and among points, lines, line segments, angles, rays share a common endpoint, and and rays. (DOK 2)
understand concepts of angle

## measurement

a. An angle is measured with
reference to a circle with its center at
the common endpoint of the rays, by considering the fraction of the
circular arc between the points wher the two rays intersect the circle. An angle that turns through $1 / 360$ of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through $n$ onedegree angles is said to have an angle measure of $n$ degrees.

- I can answer questions about data measured Envision Math Topic 15 on a line plot.
- I can create a line plot to display a data set that includes fractions or mixed numbers.
- I can add and subtract fractions using information from a line plot.
- I can recognize that a circle has 360 degrees.
- I can identify an angle
- I can explain that an angle measurement is a fraction of a circle.
- I can recognize that angles are measured in degrees within a circle.
graph
line plot
fraction mixed number interpret




