Elementary Mathematics 2016-2017

2nd Grade

CANYONS
School District

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ENVISION MATH CURRICULUM MAP
CANYONS SCHOOL DISTRICT
2016-2017

Curriculum Mapping Purpose

Canyons School District's curriculum math maps are standards-based maps driven by the Utah Core State Standards for Mathematics and implemented using Pearson enVisionMATH 2.0. Student achievement is increased when both teachers and students know where they are going, why they are going there, and what is required of them to get there. The additional instructional days were intentionally built into the map to allow teachers to go into more depth on concepts and allow flexible pacing based on student need. Supporting resources for these additional days can be found in the General Information section.

Curriculum Maps are a tool for:

- **ALIGNMENT:** Provides support and coordination between concepts, skills, standards, curriculum, and assessments
- **COMMUNICATION:** Articulates expectations and learning goals for students
- **PLANNING:** Focuses instruction and targets critical information
- **COLLABORATION:** Promotes professionalism and fosters dialogue between colleagues about best practices in both instruction and assessment.
- **SCAFFOLDED INSTRUCTION AND GROUPING STRUCTURES:** The organization of a scaffolded classroom includes whole group, small group (e.g., teacher-led skill-based, cooperative learning), partner, and independent work where students are provided support towards mastery. As students assume more responsibility for the learning, gradual support is decreased in order to shift the responsibility for learning from the teacher to the students.

Canyons School District elementary math maps are created and published by the CSD Instructional Supports Department

General Information

Pacing

This curriculum map provides guidance for intertwining the Utah Core Math Standards and the enVision 2.0 curriculum. Following the map will allow students to access all core standards by the end of the year. To support students' mastery of the standards, targeted standard clusters have been identified. Attending to these targeted standards will allow teachers to focus instruction for the given topic and better assess students' understanding of each standard.

Intentional Planning

For each domain, the map specifies both procedural checks and application tasks. These tasks represent what students should know and be able to do after instruction. Understanding these tasks will assist with designing instruction around targeted standards and critical areas.

- **Procedural Check***:* The purpose of the procedural check is to identify if students have the basic procedural understanding of the mathematical concept being highlighted.
- **Application Task**: The purpose of the application task is to assess student ability to understand and apply the skill with a heightened level of depth and complexity.

Critical Areas for Conceptual Understanding

In addition to targeted standards, critical areas have been identified and are highlighted in blue within the scope and sequence of the map. Students are expected to demonstrate a conceptual understanding of these critical areas in order to be prepared for future grades. Additional instructional days have been scheduled into the scope and sequence to provide additional time for increasing conceptual understanding of the standards. Conceptual understanding requires a focus of depth and complexity which may go beyond the enVision lessons. The following resources may be useful for extending instruction to address depth of knowledge demands of the standards.

Online:

Illustrative Mathematics: Mathematical tasks aligned to the standards https://www.illustrativemathematics.org
Inside Mathematics: More mathematical tasks aligned to the standards
http://www.insidemathematics.org/index.php/tools-for-teachers
Illuminations: Lessons, interactives, and web links to support math instruction. http://illuminations.nctm.org

Print Resources:

Elementary and Middle School Mathematics: Teaching Developmentally by John A. Van De Walle

Assessment

Throughout the enVision 2.0 curriculum there are many opportunities to check for understanding with items such as the Quick Check, Do You Understand? Show Me, and Guided Practice. In addition, each topic ends with a Topic Assessment that can be given digitally or paper/pencil as well as a Performance Assessment.

Focused Review

It is critical to provide an ongoing review of previously taught concepts and skills. Teacher-directed, interactive reviews daily are ideal to assess student learning and inform instruction. Daily Common Core Review is provide daily within the enVisionMATH 2.0 program and may be used to provide a cumulative review. The math block allocates 5-10 minutes for a daily, focused review.

Homework

The struggle to develop new concepts should occur while the teacher is available to support and scaffold the learning and correct students' errors in thinking. Work that is sent home for students to complete should consist of concepts that have already been taught in class, been practiced, and the student can already do independently. Math homework should be used to build automaticity of skills already acquired and not for development of new skills without instruction. Practicing concepts incorrectly at home can reinforce errors in thinking and cause frustration for students and families. Practicing the skill to automaticity with homework assignments is appropriate after students have acquired the skill. *Reflex Math* is available for students in grades 2-5 and can be accessed at home as well as at school. *Reflex* Math *helps* students develop fluency with their basic facts in addition, subtraction multiplication and division and could be assigned as homework to support students' automaticity.

Online Supports for Unpacking the Core

For additional information about teaching math standards, please visit the following websites:

USOE Curriculum Guides *http://csdmathematics.weebly.com/usoe-elementary-curriculum-guides.html*

North Carolina http://www.ncpublicschools.org/acre/standards/common-core-tools/#unpacking

Howard County Public Schools https://grade4commoncoremath.wikispaces.hcpss.org (Change grade number to match yours—grade_commoncoremath.wikispaces.hcpss.org)

Delware—Under assessment examples http://www.doe.k12.de.us/aab/Mathematics/assessment_tools.shtml

EngageNY—Mathematics Modules--http://www.engageny.org/mathematics

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Systematic Vocabulary Routine- Math

Acquisition	**Introduction Phase** 1. Teacher writes/says the word. 2. Students repeat the word. 3. Multisyllabic breakdown 4. Teacher gives a student friendly definition, incorporating synonyms as appropriate. 5. Students restate definition with teacher guidance. 6. Teacher identifies any prefixes, suffixes, base/root words, origin, etc.	**Teacher/Student Responsibilities** T: The word is polygon. What word? S: polygon T: Let's clap/tap "polygon" into syllables. T & S: "pol" "y" "gon". T: How many syllables? S: 3 syllables T: A closed plane figure with three or more sides that is made up of line segments that do not cross. T & **S**: A closed plane figure with three or more sides that is made up of line segments that do not cross is called a _____. T: The prefix "poly" means much or many. So a polygon has not just one side, but many sides.

Building Automaticity	**Demonstration Phase** 7. Illustrate with examples/non-examples a) Concrete examples (*realia*) b) Visual representations—video, pictures, diagrams, etc. c) Physical gesture d) Verbal Examples e) Sentence Frames (ex. If I had to survive cold weather, I would need _____. 8. Check for students' understanding by discerning between examples and non-examples (repeat as necessary)	T: Look at the figures on this picture. This figure is a polygon because it is closed figure, it is made of line segments that do not cross. These figures are not polygons because they have curved lines, they are open, and some have crossed lines. T: (Example) Draw a polygon on the board? Ones tell your partner if this is a polygon and explain why or why not. S1: The figure is a polygon because it has line segments that are closed and they do not cross. T: (Non-example) Draw a figure that is not a polygon on the board. Twos tell your partner if this is a polygon and explain why or why not. S2: The figure is not a polygon because it is made of curved lines and it is also not closed.

Application	**Application Phase** 9. Deepen students' understanding by applying the word in a new context a) Teacher asks a deep processing question b) Students respond via a quick write and/or orally with a partner or in a small group or whole group setting.	• Students use the word in a sentence. The sentence must be at least five words long. • Number 2's will say the sentence while number 1's count the words in the sentence and makes sure the sentence is a true statement. They switch and follow the same procedure.

Evidence-Based Instructional Priorities
Applied to Math Instruction

Explicit Instruction

I Do - We Do - Y'all Do - You Do
Model - Guide Practice – Partner - Independent

Systematic

- ❑ Focused on critical content
- ❑ Skills, strategies, and concepts are sequenced logically
- ❑ Break down complex skills
- ❑ Lessons are organized and focused
- ❑ Instructional routines are used
- ❑ Examples and non-examples
- ❑ Step-by-step demonstrations
- ❑ C-R-A Model

Relentless

- ❑ Adequate initial practice
  NOTE: Students who struggle may require 10-30 more times as many practice opportunities than their peers.
- ❑ Distributed practice--frequent exposure to content/skill over time
- ❑ Daily review
- ❑ Daily focus on number sense and problem solving
- ❑ Teach to mastery
- ❑ Cumulative review periodically

Engaging

- ❑ Increasing Opportunities to Respond
- ❑ Explicit Vocabulary Instruction
- ❑ Feedback
- ❑ Instructional Grouping
- ❑ Acquire – Auto – Apply
- ❑ Classroom PBIS
- ❑ Create various contexts for problem solving that students can relate to
- ❑ Pacing

Increasing Opportunities to Respond

Saying, Writing, Doing

- ❑ **Choral Responses:** give think time, use a signal for response, repeat if all students don't respond
- ❑ **Partner Sharing**: Look-Lean-Whisper; Think-Pair-Share; Study-Tell-Help-Check
- ❑ **Individual Responses:** give wait time, individual shares after partner discussion, Cold Call, random calling pattern
- ❑ **Math Journals:** Quick Writes, vocabulary practice, draw visuals of math concepts
- ❑ **Individual White Boards**: use a signal for displaying, establish a routine, provide feedback
- ❑ **Manipulatives**: establish a routine, explain expectations, all students interact with materials, provide visual bridge to concept
- ❑ **Response Cards**: yes/no; odd/even; +/-; </>/=; etc.
- ❑ **Action Responses**: thumbs up/down; modeling operations, angles, or other math concepts, act it out, hand signals

Explicit Vocabulary Instruction

- ❑ **Introduce the word**
  - Teacher says the word and posts the word
  - All students repeat the word
  - Teacher gives a child-friendly definition
  - All students repeat the definition (with teacher guidance)
  - Repeat above steps as necessary
- ❑ **Demonstrate**
  - Provide an example
  - Provide a non-example
  - Repeat above steps as necessary
- ❑ **Apply**
  - Students turn to a partner and use the word in a sentence
  - Teacher shares a sentence using the word
- ❑ **Vocabulary Cards:** Grade-level vocabulary cards available on the math website; posted on Word Wall

Feedback

- ❑ Corrective and Affirmative
- ❑ Timely and Frequent
- ❑ Specific and Reinforcing

Instructional Grouping

- ❑ Whole group, Small groups, Partners
- ❑ Fluid and flexible
- ❑ Skill-Based Small Group Instruction for identified skill gaps or extension

Acquire – Auto – Apply

- ❑ Learn (acquire) the skill
- ❑ Build the skill to automaticity
- ❑ Attend to fluency standards in the core
- ❑ Apply the skill

Classroom PBIS

- ❑ Forming clear behavior expectations
- ❑ Explicitly teaching expectations to students
- ❑ Reinforcing expectations with students
- ❑ Correcting of problem behaviors in a systematic manner

Second Grade Utah State Core Math Standards Overview

Second Grade Overview

Mathematical Practices (2.MP)
The mathematical habits of mind that teachers seek to develop in their students.

Operations and Algebraic Thinking (2.OA)

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten (2.NBT)

- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data (2.MD)

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

Geometry (2.G)

- Reason with shapes and their attributes.

Mathematics | Grade 2

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

(1) Students will extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students will understand multi-digit numbers (up to 1,000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones *(for example, 853 is 8 hundreds + 5 tens + 3 ones)*.

(2) Students will use their understanding of addition to develop fluency with addition and subtraction within 100. They will solve problems within 1,000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They will select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

(3) Students will recognize the need for standard units of measure (such as centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They will recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students will describe and analyze shapes by examining their sides and angles. Students will investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students will develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Strand: MATHEMATICAL PRACTICES (2.MP)

The Standards for Mathematical Practice in Second Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes **(Standards 2.MP1–6).**

- **Standard 2.MP.1 Make sense of problems and persevere in solving them.** Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach.

- **Standard 2.MP.2 Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects.

- **Standard 2.MP.3 Construct viable arguments and critique the reasoning of others.** Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.

- **Standard 2.MP.4 Model with mathematics.** Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical.

- **Standard 2.MP.5 Use appropriate tools strategically.** Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm.

- **Standard 2.MP.6 Attend to precision.** Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to representations. Calculate accurately and efficiently, and use clear and concise notation to record work.

- **Standard 2.MP.7 Look for and make use of structure.** Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects.

- **Standard 2.MP.8 Look for and express regularity in repeated reasoning.** Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.

Strand: OPERATIONS AND ALGEBRAIC THINKING (2.OA)

Represent and solve problems involving addition and subtraction **(Standard 2.OA.1).** Fluently add and subtract within 20 **(Standard 2.OA.2)** and work with equal groups of objects to gain foundations for multiplication **(Standards 2.OA.3–4).**

- **Standard 2.OA.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions, *for example, by using drawings and equations with a symbol for the unknown number to represent the problem*.

- **Standard 2.OA.2** Fluently add and subtract within 20.

  a. Add and subtract within 20 using mental strategies such as counting on; making ten *(for example, $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$)*; decomposing a number leading to a ten *(for example, $13 – 4 = 13 – 3 – 1 = 10 – 1 = 9$)*; using the relationship between addition and subtraction *(for example, knowing that $8 + 4 = 12$, one knows $12 – 8 = 4$)*; and creating equivalent but easier or known sums *(for example, adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$)*.

  b. By the end of Grade 2, know from memory all sums of two one-digit numbers.

- **Standard 2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, (*for example, by pairing objects or counting them by twos*). Write an equation to express an even number as a sum of two equal addends.

- **Standard 2.OA.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Strand: NUMBER AND OPERATIONS IN BASE TEN (2.NBT)

Understand place value **(Standards 2.NBT.1–4).** They use place value understanding and properties of operations to add and subtract **(Standards 2.NBT.5–9).**

- **Standard 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; *for example, 706 equals 7 hundreds, 0 tens, and 6 ones*. Understand the following as special cases:

a. 100 can be thought of as a bundle of ten tens called a "hundred."

b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

- **Standard 2.NBT.2** Count within 1,000; skip-count by fives, tens, and hundreds.
- **Standard 2.NBT.3** Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.
- **Standard 2.NBT.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
- **Standard 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **Standard 2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations.
- **Standard 2.NBT.7** Add and subtract within 1,000 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones, and that it is sometimes necessary to compose or decompose tens or hundreds.
- **Standard 2.NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
- **Standard 2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects

Strand: MEASUREMENT AND DATA (2.MD)

Measure and estimate lengths in standard units **(Standards 2.MD.1–4)** and relate addition and subtraction to length **(Standards 2.MD.5–6).** They work with time and money **(Standards 2.MD.7–8)**. They represent and interpret data **(Standards 2.MD.9–10)**.

- **Standard 2.MD.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- **Standard 2.MD.2** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- **Standard 2.MD.3** Estimate lengths using units of inches, feet, centimeters, and meters.

- **Standard 2.MD.4** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. *For example, after measuring a pencil and a crayon, a student uses the measurements to determine that the pencil is two inches longer than the crayon.*

- **Standard 2.MD.5** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units. *For example, use drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.*

- **Standard 2.MD.6** Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2… Represent whole-number sums and differences within 100 on a number line diagram.

- **Standard 2.MD.7** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

- **Standard 2.MD.8** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *For example, if you have 2 dimes and 3 pennies, how many cents do you have?*

- **Standard 2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

- **Standard 2.MD.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and comparison problems using information presented in a bar graph.

Strand: GEOMETRY (2.G)

Reason with shapes and their attributes.

- **Standard 2.G.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Sizes are compared directly or visually, not compared by measuring. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

- **Standard 2.G.2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of squares.

- **Standard 2.G.3** Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds, half of, a third of,* etc.; and describe the whole as two halves, three thirds, or four fourths. Recognize that equal shares of identical wholes need not have the same shape.

2nd Grade Utah Core State Standards for Mathematics

MATHEMATICAL PRACTICES	
Previous	**2016/2017**
Mathematical Practices 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.	**Strand: MATHEMATICAL PRACTICES (2.MP)** The Standards for Mathematical Practice in Second Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes. **Standard 2.MP.1 Make sense of problems and persevere in solving them**. Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach. **Standard 2.MP.2 Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects. **Standard 2.MP.3 Construct viable arguments and critique the reasoning of others.** Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. **Standard 2.MP.4 Model with mathematics.** Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical. **Standard 2.MP.5 Use appropriate tools strategically.** Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams , technologies, and physical objects and tools, as

	well as mathematical tools such as estimation or a particular strategy or algorithm. **Standard 2.MP.6 Attend to precision.** Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to representations. Calculate accurately and efficiently, and use clear and concise notation to record work. **Standard 2.MP.7 Look for and make use of structure.** Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects. **Standard 2.MP.8 Look for and express regularity in repeated reasoning.** Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.

OPERATIONS AND ALGEBRAIC THINKING	
Previous	**2016/2017**
Operations and algebraic thinking *2.OA.A* **Represent and solve problems involving addition and subtraction.** 1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **Add and subtract within 20. *2.OA.B*** 2. Fluently add and subtract within 20 using mental strategies, by end of Grade 2, know from memory all sums of two one- digit numbers	**Strand: OPERATIONS AND ALGEBRAIC THINKING (2.OA)** Represent and solve problems involving addition and subtraction **(Standard 2.OA.**1). Fluently add and subtract within 20 **(Standard 2.OA.2)** and work with equal groups of objects to gain foundations for multiplication **(Standards 2.OA.3-4).** **Standard 2.OA.1** Use addition and subtraction with 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in al positions, *for example, by using drawings and equations with a symbol for the unknown number to represent the problem.* **Standard 2.OA.2** Fluently add and subtract within 20. a. Add and subtract within 20 using mental strategies such as counting on; making ten *(for example, 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14);* decomposing a number leading to a ten (*for example, 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9);* using the relationship between addition

Work with equal groups of objects to gain foundations for multiplication. *2.OA.C* 3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends. 4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	and subtraction *(for example, knowing that 8 + 4 = 12, one knows 12 – 8 = 4);* and creating equivalent but easier or known sums (*for example, adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13)*. b. By the end of Grade 2, know from memory all sums of two one-digit numbers. **Standard 2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, (*for example, by pairing objects or counting them by 2s)*. Write an equation to express an even number as a sum of two equal addends. **Standard 2.OA.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
NUMBERS AND OPERATIONS IN BASE TEN	
Previous	**2016/2017**
Number and Operations in Base Ten **2.NBT** **Understand place value *2.NBT.A*** 1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a) 100 can be thought of as a bundle of ten tens — called a “hundred.” b) The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). 2. Count within 1000; skip-count by 5s, 10s, and 100s. 3. Read and write numbers to 1000 using base-ten	**Strand: NUMBER AND OPERATIONS IN BASE TEN (2.NBT)** Understand place value **(Standards 2.NBT.1-4)**. Use place value understanding and properties of operations to add and subtract **(Standards 2.NBT.5-9).** **Standard 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; *for example, 706 equals 7 hundreds, 0 tens, and 6 ones*. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). **Standard 2.NBT.2** Count within 1000; skip-count by fives, tens, and hundreds. **Standard 2.NBT.3** Read and write numbers to 1,000 using base-ten

numerals, number names, and expanded form. 4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **Use place value understanding and properties of operations to add and subtract. *2.NBT.B*** 5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. 6. Add up to four two-digit numbers using strategies based on place value and properties of operations. 7. Add and subtract within 1000, 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. Understand that in adding or subtracting three- digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. 8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. 9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	numerals, number names, and expanded form. **Standard 2.NBT.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **Standard 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Standard 2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations. **Standard 2.NBT.7** Add and subtract within 1,000 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones, and that it is sometimes necessary to compose or decompose tens or hundreds. **Standard 2.NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. **Standard 2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects.
MEASUREMENT AND DATA	
Previous	**2016/2017**
Measure and estimate lengths in standard units.	**Strand: MEASUREMENT AND DATA (2.MD)** Measure and estimate lengths in standard units **(Standards 2.MD.1-4)** and

2.MD.A

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
3. Estimate lengths using units of inches, feet, centimeters, and meters.
4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Relate addition and subtraction to length. ***2.MD.B***

5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram

Work with time and money. ***2.MD.C***

7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*

relate addition and subtraction to length **(Standards 2.MD.5-6).** They work with time and money **(Standards 2.MD.7-8).** They represent and interpret data **(Standards 2.MD.9-10)**.

Standard 2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

Standard 2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

Standard 2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.

Standard 2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. *For example, after measuring a pencil and a crayon, a student uses the measurements to determine that the pencil is two inches longer than the crayon.*

Standard 2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units. *For example, use drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.*

Standard 2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2... Represent whole-number sums and differences within 100 on a number line diagram.

Standard 2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

Standard 2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ₵ symbols appropriately. *For example, if you have 2 dimes and 3 pennies, how many cents do you*

Represent and interpret data. 2.MD.D 9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	*have?* **Standard 2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. **Standard 2.MD.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and comparison problems using information presented in a bar graph.
GEOMETRY	
Previous	**2016/2017**
Geometry **2.G** **Reason with shapes and their attributes. *2.G.A*** 1.Recognize and draw shapes having specified attributes, such as a given number or angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 2.Partition a rectangle into rows and columns of a same-size squares and count to find the total number of them. 3.Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	**Strand: GEOMETRY (2.G)** Reason with shapes and their attributes. **Standard 2.G.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Sizes are compared directly or visually, not compared by measuring. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. **Standard2.G.2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of squares. **Standard 2.G.3** Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds, half of, a third of*, etc.; and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Utah Core Standards for Mathematics Progressions

	Kindergarten	1st Grade
Counting and Cardinality	• Count to 100 by ones and tens • Represent and write numbers for 0 - 20 • Count to tell the number of objects • Compare numbers; greater than, less than, equal • Compare written numerals between 1 and 10	

Operations and Algebraic Thinking	• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
	  o Represent addition and subtraction
	  o Solve addition and subtraction word problems within 10
	  o Decompose numbers less than or equal to 10
	  o For any number from 1 to 9, find the number that makes 10 when add to the given number
	  o Fluently add and subtract within 5
		• Represent and solve problems involving addition and subtraction within 20
		• Understand and apply properties of operations and the relationship between addition and subtraction
		  o Understand subtraction as an unknown-addend problem
		• Relate addition and subtraction with 20 to counting
		• Add and subtract within 20
		• Understand the meaning of the equal sign
		• Work with addition and subtraction equations

Numbers and Operations in Base Ten	• Work with numbers 11-19 to gain foundation for place value
	  o Compose and decompose numbers
		• Read, write, count and represent to 120
		• Understand place value of tens and ones
		• Compare two-digit numbers based on tens and ones
		• Use place value understanding and properties of operations to add and subtract
		  o Add within 100
		  o Mentally find 10 more or 10 less with two-digit numbers
		  o Subtract multiples of 10 in the range of 10 -90 from multiples of 10 in the range of 10-90

Measurement and Data	• Describe and compare measureable attributes such as length and weight • Directly compare two objects with the same measurable attribute in common and describe the difference • Classify objects and count the numbers of objects in categories	• Measure lengths indirectly and by iterating lengths units • Tell and write time in hours and half-hours using analog and digital clocks • Organize, represent and interpret data up to three categories • Identify and compare the values of pennies, nickels, dimes and quarters

Geometry	• Identify, name and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)
	• Identify shapes as two-dimensional or three-dimensional
	• Analyze, compare, create and compose shapes
		• Reason with shapes and their attributes
		  o Distinguish between defining vs. non-defining attributes
		  o Compose two-dimensional or three-dimensional shapes to compose and create shapes
		  o Partition circles and rectangles into two and four equal shares

Utah Core Standards for Mathematics Progressions

	2nd Grade	3rd Grade
Operations and Algebraic Thinking	• Represent and solve one- and two-step word problems involving addition and subtraction within 100 • Fluently add and subtract within 20 using mental strategies • Work with equal groups of objects to gain foundations for multiplication • Use addition to find the total number of objects in rectangular arrays with up to 5 rows and up to 5 columns	• Represent and solve problems involving multiplication and division within 100 • Understand properties of multiplication and the relationship between multiplication and division • Multiply and divide within 100 • Solve two-step word problems involving the four operations and identify and explain patterns in arithmetic

Numbers and Operations in Base Ten	• Use place value understanding and properties of operations to add and subtract within 100
	  o Count, read and write within 1000
	  o Compare three-digit numbers using symbols
		• Use place value understanding and properties of operations to perform multi-digit arithmetic
		  o Round whole numbers to nearest 10 or 100
		  o Fluently add and subtract within 1000
		  o Multiply one-digit whole numbers by multiples of 10 in range 10-90

Numbers and Operations- Fractions		• Develop understanding of fractions as numbers with denominators 2, 3, 4, 6, 8 using number lines • Explain equivalence of fractions and compare by reasoning about their size
Measurement and Data	• Measure lengths of an object by selecting and using appropriate tools in standard units. • Measure and estimate lengths using units of inches, feet centimeters and meters • Measure to determine how much longer • Relate addition and subtraction to length within 100 • Represent whole numbers as distance from 0 on the number line • Work with time on digital and analog clocks to the nearest 5 minutes • Solve word problems involving money • Represent and interpret data by measuring objects and making repeated measurements of the same object • Represent and interpret data by drawing a picture graph and a bar graph to represent a data set up to four categories	• Solve problems involving measurement and estimation of intervals of time to the nearest minute • Solve problems involving measurement and estimation of liquid volumes and masses of objects using grams, kilograms and liters • Represent and interpret data using scaled picture and bar graphs • Generate measurement data by measuring lengths to halves and fourths • Geometric measurement: Understand concepts of area and relate area to multiplication and to addition • Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Geometry	• Recognize and draw shapes having specified attributes • Partition a rectangle into rows and columns • Partition circles and rectangles into two, three, or four equal shares	• Understand that shapes in different categories may share attributes • Partition shapes into parts with equal areas

Utah Core Standards for Mathematics Progressions

	4th Grade	5th Grade
Operations and Algebraic Thinking	• Use the four operations with whole numbers to solve word problems o Interpret a multiplication equation as a comparison o Involve multiplicative comparisons o Solve multistep word problems using whole numbers with whole number answers • Gain familiarity with factors and multiples in the range 1-100 • Generate and analyze patterns that follow a given rule	• Write and interpret numerical expressions o Use parenthesis, brackets, or braces in numerical expressions and evaluate expression with these symbols o Write simple expressions and interpret numerical expressions without evaluating them • Analyze patterns and relationships o Generate two numerical patterns using two given rules o Form ordered pairs
Numbers and Operations in Base Ten	• Generalize place value understanding for multi-digit whole numbers o Read, write, compare and expand multi-digit whole numbers o Round multi-digit numbers to any place • Fluently add and subtract multi-digit whole numbers using the • Use place value understanding and properties of operations to perform multi-digit multiplication o Multiply up to four digits by a one-digit number o Multiply two two-digit numbers using strategies and properties (illustrate and explain the calculations using equations, rectangular arrays and area models)	• Understand the place value system o Recognize a multi-digit number in the one place represents 10 times as much as it represents in the place to its right and 1/10 to its left o Explain patterns when multiplying by zero and explain patterns when a decimal is multiplied or divided o Use whole-number exponents to denote powers of 10 o Read, write and compare decimals to thousandths o Round to any place o Fluently multiply multi-digit whole numbers • Perform operations with multi-digit whole numbers and with decimal to hundredths o Fluently multiply multi-digit whole numbers o Find whole-number quotients of whole numbers up to four-digit dividends (illustrate and explain the calculations using equations, rectangular arrays and area models) o Add, subtract, multiply, and divide decimals to hundredths
Numbers and Operations-Fractions	• Extend understanding of fraction equivalence and ordering with denominators 2,3,4,5,6,8,10,12,10 o Explain and generate equivalent fractions using visual models o Compare with justification two fractions with different denominators and numerators and use the symbols >, =, <. • Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers o Understand addition and subtraction of fractions as joining and separating parts referring to the same whole o Decompose a fraction into a sum of fractions with same denominator o Add and subtract mixed numbers with like denominators o Solve word problems involving addition and subtraction of fractions having like denominators o Understand a fraction a/b as a multiple of 1/b and use this	• Use equivalent fractions as a strategy to add and subtract fractions o Add and subtract fractions with unlike denominators o Solve word problems involving addition and subtraction of fractions with unlike denominators • Apply and extend previous understandings of multiplication and division to multiply and divide fractions o Interpret a fraction as division of the numerator by the denominator o Solve word problems involving division of whole numbers o Find the are of a rectangle with fractional side lengths by tiling it with unit squares o Multiply fractional side lengths to find area of rectangle to get a rectangular areas o Interpret multiplication as scaling o Solve real world problems involving multiplication of

	understanding to multiply a fraction by a whole number o Solve word problems involving multiplication of a fraction by a whole number • Understand decimal notation for fractions and compare decimal fractions o Express a fraction with denominator 10 as an equivalent fraction with denominator 100 o Use decimal notation for fractions with denominators 10 or 100 o Compare two decimals to hundredths by reasoning about their size	fractions and mixed numbers o Divide a unit fraction by a whole number and whole numbers by unit fractions
Measurement and Data	• Solve problems involving measurement and conversion of measurements form a larger unit to a smaller unit o Know relative sizes of measurement units within one system of units including km, m, cm; kg, g, oz; l, ml; hr, min, sec. and express measurement equivalents in terms of a smaller unit, recording measurement in a two-column table o Use the four operations to solve problems involving distances, intervals of time, liquid volumes, masses of objects, and money including problems involving simple fractions or decimals o Represent measurement quantities using diagrams such as number line diagrams such as number line diagrams that feature a measurement scale o Apply the area and perimeter formulas in real world problems o Make a line plot to display data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$) • Represent and interpret data by making a line plot to display data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$) • Understand concepts of angle and measure angles o As angle is measured with reference to a circle o An angle that turns through *n* one-degree is said to have an angle measure of *n* degrees o Measure and sketch angles in whole-number degrees using a protractor o Recognize angles measures as additive o Solve addition and subtraction problems to find unknown angles	• Convert like measurement units within a given measurement system • Represent and Interpret data o Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$) o Use operations on fractions for this grade to solve problems from information on the line plot • Recognize volume as an attribute of solid figures and understand concepts of volume measurement. o Measure volume by counting unit cubes • Relate volume to the operations of multiplication and addition and solve real world problems involving volume o Find the volume of a right triangle by packing it with unit cubes o Apply formulas V=l x w x h and V= b x h o Recognize volume as additive o Find volume of solid figures composed of two non-overlapping right rectangular prisms
Geometry	• Draw points, lines, line segments, ray, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures • Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. • Recognize right triangles as a category and identify right triangles • Recognize a line of symmetry for a two-dimensional figure and identify line symmetric figures and draw lines of symmetry	• Graph points on the coordinate plane to solve real-world and mathematical problems in the first quadrant • Classify two-dimensional figures into categories based on their properties o Understand that attributes belonging to a category of two-dimensional figures belong to all subcategories o Classify two-dimensional figures in a hierarchy based on properties

CCSS
WHERE TO FOCUS
MATHEMATICS

An important subset of the major work in grades K–8 is the progression that leads toward middle school algebra.

K	1	2	3	4	5	6	7	8
Know number names and the count sequence Count to tell the number of objects Compare numbers Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from Work with numbers 11-19 to gain foundations for place value	Represent and solve problems involving addition and subtraction Understand and apply properties of operations and the relationship between addition and subtraction Add and subtract within 20 Work with addition and subtraction equations Extend the counting sequence Understand place value Use place value understanding and properties of operations to add and subtract Measure lengths indirectly and by iterating length units	Represent and solve problems involving addition and subtraction Add and subtract within 20 Understand place value Use place value understanding and properties of operations to add and subtract Measure and estimate lengths in standard units Relate addition and subtraction to length	Represent & solve problems involving multiplication and division Understand properties of multiplication and the relationship between multiplication and division Multiply & divide within 100 Solve problems involving the four operations, and identify & explain patterns in arithmetic Develop understanding of fractions as numbers Solve problems involving measurement and estimation of intervals of time, liquid volumes, & masses of objects Geometric measurement: understand concepts of area and relate area to multiplication and to addition	Use the four operations with whole numbers to solve problems Generalize place value understanding for multi-digit whole numbers Use place value understanding and properties of operations to perform multidigit arithmetic Extend understanding of fraction equivalence and ordering Build fractions from unit fractions by applying and extending previous understandings of operations Understand decimal notation for fractions, and compare decimal fractions	Understand the place value system Perform operations with multi-digit whole numbers and decimals to hundredths Use equivalent fractions as a strategy to add and subtract fractions Apply and extend previous understandings of multiplication and division to multiply and divide fractions Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition Graph points in the coordinate plane to solve real-world and mathematical problems*	Apply and extend previous understandings of multiplication and division to divide fractions by fractions Apply and extend previous understandings of numbers to the system of rational numbers Understand ratio concepts and use ratio reasoning to solve problems Apply and extend previous understandings of arithmetic to algebraic expressions Reason about and solve one-variable equations and inequalities Represent and analyze quantitative relationships between dependent and independent variables	Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers Analyze proportional relationships and use them to solve real-world and mathematical problems Use properties of operations to generate equivalent expressions Solve real-life and mathematical problems using numerical and algebraic expressions and equations	Work with radical and integer exponents Understand the connections between proportional relationships, lines, and linear equations** Analyze and solve linear equations and pairs of simultaneous linear equations Define, evaluate, and compare functions Use functions to model relationships between quantities

* Indicates a cluster that is well thought of as a part of a student's progress to algebra, but that is currently not designated as major by the assessment consortia in their draft materials. Apart from the one asterisked exception, the clusters listed here are a subset of those designated as major in the assessment consortia's draft documents.
** Depends on similarity ideas from geometry to show that slope can be defined and then used to show that a linear equation has a graph which is a straight line and conversely.

The Utah Core Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important processes and proficiencies with longstanding importance in mathematics education.

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.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

"The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices" (CCSS, 2010).

Common Core State Standards
Standards for Mathematical Practice
Questions for Teachers to Ask

Make sense of problems and persevere in solving them	Reason abstractly and quantitatively	Construct viable arguments and critique the reasoning of others	Model with mathematics
Teachers ask: • What is this problem asking? • How could you start this problem? • How could you make this problem easier to solve? • How is ___'s way of solving the problem like/different from yours? • Does your plan make sense? Why or why not? • What tools/manipulatives might help you? • What are you having trouble with? • How can you check this?	*Teachers ask:* • What does the number ____ represent in the problem? • How can you represent the problem with symbols and numbers? • Create a representation of the problem.	*Teachers ask:* • How is your answer different than _____'s? • How can you prove that your answer is correct? • What math language will help you prove your answer? • What examples could prove or disprove your argument? • What do you think about _____'s argument • What is wrong with ____'s thinking? • What questions do you have for ____? **it is important that the teacher poses tasks that involve arguments or critiques*	*Teachers ask:* • Write a number sentence to describe this situation • What do you already know about solving this problem? • What connections do you see? • Why do the results make sense? • Is this working or do you need to change your model? **It is important that the teacher poses tasks that involve real world situations*
Use appropriate tools strategically	**Attend to precision**	**Look for and make use of structure**	**Look for and express regularity in repeated reasoning**
Teachers ask: • How could you use manipulatives or a drawing to show your thinking? • Which tool/manipulative would be best for this problem? • What other resources could help you solve this problem?	*Teachers ask:* • What does the word ____ mean? • Explain what you did to solve the problem. • Compare your answer to _____'s answer • What labels could you use? • How do you know your answer is accurate? • Did you use the most efficient way to solve the problem?	*Teachers ask:* • Why does this happen? • How is ____ related to ____? • Why is this important to the problem? • What do you know about ____ that you can apply to this situation? • How can you use what you know to explain why this works? • What patterns do you see? **deductive reasoning (moving from general to specific)*	*Teachers ask:* • What generalizations can you make? • Can you find a shortcut to solve the problem? How would your shortcut make the problem easier? • How could this problem help you solve another problem? **inductive reasoning (moving from specific to general)*

Grades 1-5 CSD Math Block 90 Minutes Daily

Numeracy Component	Range of Time	Focus of Instruction		Instructional Materials	
				Hard Copy	**Digital**

Review	5-10 minutes	• Focused Review
		  ○ Identified skill deficit that have been identified through formative assessment to review (CFA, exit ticket, whiteboards, etc.)
		  ○ Cumulative review of previously taught skills and standards
			Check for Understanding (Formative Assessment)
			Monitor progress towards mastery of grade-level core standard
				• Daily Common Core Review
				• Today's Challenge
				• Review What you Know
					• Today's Challenge

Vocabulary	3-5 minutes	• Teach Appropriate Vocabulary using the Systematic Vocabulary Routine		• Systematic Vocabulary Routine • Vocabulary Review Activity • My Word Cards	
Lesson Objectives	1-3 Minutes	• Content Objectives- What are students going to learn? • Language Objectives- How will students demonstrate learning through reading, writing, speaking, or listening?		• Lesson objectives are posted and referred to throughout the lesson • Objectives include both content and math practice standards	

Concept/Skill Development (Acquisition, Automaticity & Application)	30-45 minutes	Develop the Concept:
		• Acquisition: Students develop understanding of skills through the CRA Model
		  ○ Concrete: Hands-on (manipulatives)
		  ○ Representational: Visual (pictures or video)
		  ○ Abstract: Symbolic (numbers or algorithm)
		• Automaticity: Students perform skills flexibly, accurately, and efficiently
		• Application: Students apply skills to solve problems in new contexts
				• Problem-Based Interactive Learning
				• Visual Learning Bridge
				  ○ (K-2) Do You Understand? Show Me!
				  ○ 3-5) Convince Me!
				  ○ Guided Practice
				  ○ Independent Practice (Quick Check)
					• Solve and Share (Problem Based Learning)
					• Visual Learning Animation Plus
					• Convince Me! (3-5)
					• Do You Understand? (K-2)
					• Student and Teacher eTexts
					• Listen and Look Videos (teacher)
					•

Skill-Based Instruction: Pre-teach, Review, Reinforce & Extend	30-45 minutes	• Pre-teach upcoming concepts to groups and individual students that need support/scaffolding • Students practice concepts independently as appropriate • Reteach with skill-based groups who need extra support/scaffolding • Provide extension opportunities for students who have shown mastery of the concept/skill • Build Fluency with math facts and computation		• Intervention Activity • ON-level and Advanced Activity Centers • Reteach • Leveled Assignment • Differentiated Center materials • Close/Assess and Differentiate	• Practice Buddy • Reflex (grades 2-5)

Skill-Based Instruction: Assisting All Students to Succeed in Mathematics

Skill-Based Instruction is additional support given to students during the math block by the teacher aimed at building targeted math skills. This is in addition to core instruction given to entire class.

enVision 2.0 supports skill-based instruction with the following resources:

- **Intervention Activity** (Assess and Differentiate section at the end of each lesson) Students needing intervention get focused instruction from the teacher.
- **Math Diagnosis and Intervention System 2.0 (**MDIS**)** Provides additional lessons to focus intervention for students.
- **Item Analysis for Diagnosis and Intervention (**RtI**)** Provided with assessments to support analyzing gaps in mastery of standards
- **Reteaching** Problem sets at the end of each topic that connect to the math standards

Skill-based instruction is explicit & systematic *(I do, we do, y'all do, and you do)*	***Examples***
Provide additional **concrete models** to build understanding **with accompanying teacher think-alouds**	• Use manipulatives such as place value blocks, Unifix cubes, and fraction circles. • Use visual representations such as number lines, arrays, and bar diagrams. • Teacher Think-Aloud: *"When I have fourteen cubes, I can create one ten stick and I have four cubes left over to make 14."*
Provide students opportunities to understand the **relationship between the abstract symbols and visual representations.**	• The = sign means that we have the same amount on both sides of the equal sign. ✪ ✪ ✪ = ✪ ✪ ✪
Provide numerous **examples with accompanying teacher think-alouds**	Skill: Addition of Fractions Examples: • ½ + ¼ = • ¼ + ¼ = Teacher Think-Aloud: *"We know that when we add fractions with common denominators the denominator will stay the same because we still have the same size piece. So when I add ¼ + ¼ I have* $^2/_4$ *because I have 2, ¼ pieces."*
Provide **students** with opportunities to **solve problems** in a group **and communicate problem-solving strategies.**	• Students effectively communicate their strategies to *one another* using appropriate mathematical vocabulary. • Students effectively communicate their strategies to the *teacher* using appropriate mathematical vocabulary.
Provide students ongoing, **specific feedback** that clarifies what students did correctly or what they need to improve.	• Student correctly answers that 5 + 3 = 8. Teacher says, "Yes, that is correct. The total of five and three is eight." • Student incorrectly identifies that 5 + 3 = 7. Teacher says, "Five plus three is not seven. Pull out your unifix cubes and show me the problem with your cubes." *Student counts the cubes and answers that 5 + 3 = 8.* "That is correct. The total of five and three is eight. Thank you for trying again."
Provide **frequent cumulative review** to ensure that knowledge is maintained over time.	Skill: Adding Decimals • Teacher quickly reviews multi-digit addition with an emphasis on place value.
Provide opportunity for **students to apply the skill in word problems.**	Skill: Area - finding the area of a rectangle given the side lengths. • Students create word problems using the area of squares for example a student creates the following problem, *"Bobbie is tiling the kitchen floor with square foot tiles. The floor has side lengths of 10 feet and*

	12 feet. How many tiles are needed to cover the floor?"

During skill-based instruction, students not with the teacher could engage in the following math center activities:

Center Options	Description
Center Activities from enVision 2.0	• At the end of each enVision2.0 lesson in the Assess and Differentiate section are the On-Level and Advanced Center Activities which include: Center Games, Problem-Solving Reading Mat, Math and Science Activity
Digital Centers from enVision 2.0	• The following digital components from enVision 2.0 could be utilized by students during math centers: Today's Challenge, Game from the Game Center, Digital Math Tool Activities, Another Look video, Bounce Pages, Practice Buddy (grades 3-5)
Technology	• Reflex- Students work independently in grades 2-5 to build fluency of basic math facts • Students use appropriate technology to deepen their understanding of math.
Fluency	• Fluency is built on any skill that has been taught throughout the year (*e.g., previous instruction focused on fact families and pairs of students work together and to create fact families using number cards, including numbers 0-9. The student created fact families would be recorded on a piece of paper or graphic organizer.)*
Four-Square Math	• Students are given a four square graphic organizer with a previously learned vocabulary word or concept in the middle of the graphic. The four areas to write could include any of the following: three words or pictures that help you remember the word, characteristics, non-example, example, a statement that is true about the word, three words related to the word, or a conclusion statement. • Students write a math practice standard in the middle of the four square and could add any of the following to the squares: characteristics of the MP, list what students do when they engage in the MP, write questions that you would ask your partner when you are focusing on the MP, six word summary of the MP, etc.
Literature in Math	• Students read or look at a book that relates to the current or past math concept. The teacher provides questions or sentence starters for the group at the center to support discussion after reading.
Manipulatives	• Students manipulate math tools to complete a grade level task.
Math Journals	• Students write or draw in math journals to summarize their learning. • Students review their notes and star key ideas.
Problem-Solving using DOK 3	• Students in small groups are presented with an application problem that requires reasoning, problem solving, and justification of their thought process by using words, pictures or equations. • Tasks are available at the following websites: http://www.insidemathematics.org https://www.illustrativemathematics.org http://illuminations.nctm.org
Vocabulary	• Students match previously taught vocabulary words with illustrations. After finding a match the student would define the word. • Students do a word sort with the enVision vocabulary cards. • Students find similarities and differences in words using a Venn Diagram.

2nd Grade
Year-at-a-Glance 2016-2017

Flexible Pacing	Strands/Standards	enVision 2.0 Math Topic Titles	TOPICS	District Assessment Dates
Aug 24-Nov-11 52 Days	**Mathematical Practices: 3, 4, 5** Operations and Algebraic Thinking: Standard 2 (2.OA.B) Operations and Algebraic Thinking: Standard 3 & 4 (2.OA.C) Numbers and Operations in Base 10: Standards 5-9 (2.NBT.B)	• **Fluently Add and Subtract Within 20 (10 lessons)**	Topic 1	Due by November 11 District-Wide Standards-Based Benchmark #1
		• **Work with Equal Groups (5 lessons)**	Topic 2	
		• **Add Within 100 Using Strategies (9 lessons)**	Topic 3	
		• **Fluently Add Within 100 (8 lessons)**	Topic 4	
Nov 14-Feb 9 51 Days	**Mathematical Practices: 2, 3** Numbers and Operations in Base 10: Standards 5-9 (2.NBT.B) Operations and Algebraic Thinking: Standard 1 (2.OA.A) Measurement and Data: Standards 7-8 (2.MD.C)	• **Subtract Within 100 Using Strategies (9 lessons)**	Topic 5	Due by February 9 District-Wide Standards-Based Benchmark #2
		• **Fluently Subtract Within 100 (9 lessons)**	Topic 6	
		• **More Solving Problems Involving Addition and Subtraction (6 lessons)**	Topic 7	
		• **Work with Time and Money (8 lessons)**	Topic 8	
Feb 13 – Apr 28 48 Days	**Mathematical Practices: 1, 6, 7, 8** Numbers & Operations in Base 10: Standards 1-4 (2.NBT.A) Numbers & Operations in Base 10: Standards 5-9 (2.NBT.B) Measurement and Data: Standards 1-4 (2.MD.A)	• **Numbers to 1,000 (10 lessons)**	Topic 9	Due by April 28 District-Wide Standards-Based Benchmark #3
		• **Add Within 1,000 Using Models and Strategies (7 lessons)**	Topic 10	
		• **Subtract Within 1,000 Using Models and Strategies (7 lessons)**	Topic 11	
		• **Measuring Length (9 lessons)**	Topic 12	
May 1 – June 6 25 Days	**Mathematical Practices: 2, 5, 8** Measurement and Data Standards: 5-6 (2.MD.B) Measurement and Data: Standard 9-10 (2.MD.D) Geometry: Standards 1-3 (2.G.A)	• **More Addition, Subtraction, and Length (5 lessons)**	Topic 13	Due by June 6 District-Wide Standards-Based Benchmark #4
		• **Graphs and Data (6 lessons)**	Topic 14	
		• **Shapes and Their Attributes (8 lessons)**	Topic 15	

2nd Grade

DWSBB 1: August 24 – November 11 **Flexible Pacing: 52 days**

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 1 – Fluently Add and Subtract Within 20

Report Card Learning Targets:
I can….
- Mentally add within 20
- Mentally subtract within 20

TOPIC 1

Coherence		**pp. 1C-1D**
Look back: **Grade 1-** • Addition and Subtraction Situations • Add and Subtract Within 10 • Add and Subtract Within 20	**Topic 1:** • Connect Strategies • Connect Addition and Subtraction	**Look Ahead:** **Later in Grade 2-** • Add and Subtract Larger Numbers • Add and Subtract Length • Add and Subtract Data **Grade 3-** • Fluently Add and Subtract Within 1,000
Rigor		**p. 1E**
Conceptual Understanding: • Make Sense of Addition and Subtraction Strategies • Apply the Commutative Property • Relate Addition and Subtraction	**Procedural Skill and Fluency:** • Use Strategies to Add and Subtract Within 20	**Applications:** • Addition and Subtraction Situations

Focus	**Strand: Mathematical Practice Standard # 3**	**p. 1F**
2.MP.3	**Construct viable arguments and critique the reasoning of others.** Use state assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. ***Second grade students solve addition and subtraction problems and make arguments to justify solutions using words, pictures and numbers.***	

	I can provide complete and clear explanations of my thinking and work. I can decide if other students' explanations make sense; clarify or improve other students' arguments. I can use counterexamples when appropriate.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.OA.2 (2.OA.B)	**Strand: Operations and Algebraic Thinking** Second grade students will fluently add and subtract within 20. **Standard 2.OA.2** Fluently add and subtract within 20. A. Add and subtract within 20 using mental strategies such as counting on; making ten (*for example, 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14*); decomposing a number leading to a ten (*for example, 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9*); using the relationship between addition and subtraction (*for example, knowing that 8 + 4 = 12, one knows 12 – 8 = 4*); and creating equivalent but easier or known sums (*for example, adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13*). B. By the end of Grade 2, know from memory all sums of two one-digit numbers.	**Topic 1: Fluently Add and Subtract Within 20** *(pp. 1I-1L)* **1-1** Addition Fact Strategies *(pp. 5-10)* **1-2** Doubles and Near Doubles *(pp. 11-16)* **1-3** Make a 10 to Add *(pp. 17-22)* **1-4** Addition Fact Patterns *(pp. 23-28)* **1-5** Count On and Count Back to Subtract *(pp. 29-34)* **1-6** Think Addition to Subtract *(pp. 35-40)* **1-7** Make a 10 to Subtract *(pp. 41-46)* **1-8** Practice Addition and Subtraction Facts *(pp. 47-52)* **1-9** Solve Addition and Subtraction Word Problems *(pp. 53-58)* **1-10 Math Practices and Problem Solving: Construct Arguments** *(pp. 59-64)*	**Topic 1:** • equation • addends • sum • doubles • near doubles • difference
	Assessment Options:	**Topic 1 Assessment –** Fluently Add and Subtract Within 20 *(print or online)* *(pp. 71-74)* **Topic 1 Performance Assessment –** Fluently Add and Subtract Within 20 *(pp. 75-76)*	

	Assessment Tasks – Topic 1	
	Procedural Check	**Application Task**
2.OA.2	Solve each set of problems. 4 + 4 = _____ 4 + 5 = _____ 6 + 6 = _____ 6 + 7 = _____ 10 + 5 = _____ 9 + 6 = _____ 10 + 3 = _____ 9 + 4 = _____ (DOK 2)	Draw a picture and explain how you would use a ten-frame to solve the following problem. Corey's team had 9 points. Bradley's team had 8 points. All together how many points did the teams score? (DOK 3) Cam read for 5 hours this week. Next week he wants to read 7 hours. He said this will help him to reach his goal for reading 15 hours every two weeks because 5 + 5 = 10 and 10 + 5 = 15. Is Cam correct? Explain using pictures, numbers and/or words. (DOK 3)

2nd Grade

DWSBB 1: August 24 – November 11 **Flexible Pacing: 52 days**

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 2 – Work with Equal Groups

Report Card Learning Targets: **I can….** • Mentally add within 20		
TOPIC 2		
Coherence		**pp. 77C-77D**
Look back: **Grade 1-** • Addition Facts to 20 • Addition Equations **Earlier in Grade 2-** • Addition Fluency • Doubles and Near Doubles	**Topic 2:** • Even and Odd Numbers • Arrays and Repeated Addition • Situations Involving Equal Groups	**Look Ahead:** **Later in Grade 2-** • Add Within 100 • Problems Involving Addition • Skip Count • Add Within 1,000 • Divide Rectangles **Grade 3-** • Understanding Multiplication •
Rigor		**p. 77E**
Conceptual Understanding: • Understand Even and Odd Numbers • Use and Make Arrays	**Procedural Skill and Fluency:** • Add Whole Numbers Within 20	**Applications:** • Addition Situations

Focus	**Strand: Mathematical Practice Standard #4** **p. 77F**
2.MP.4	**Model with mathematics.** Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical. ***Second grade students model with math when they draw on math they know, particularly addition, to solve problems involving even and odd numbers and equal groups.***

	I can identify the correct prior knowledge that needs to be applied to solve a problem. I can identify the hidden question(s) in multiple-step problems. I can use numbers, symbols, and words to solve problems. I can identify the operation(s) needed to solve a problem. I can use estimation as appropriate.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.OA.3 **2.OA.4** **(2.OA.C)**	**Strand: Operations and Algebraic Thinking** Second grade students will work with equal groups of objects to gain foundations for multiplication. **Standard 2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, (*for example, by pairing objects or counting them by 2s*). Write an equation to express an even number as a sum of two equal addends. **Standard 2.OA.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	**Topic 2: Work with Equal Groups** *(pp. 77I-77J)* **2-1** Even and Odd Numbers *(pp. 81-86)* **2-2** Continue Even and Odd Numbers *(pp. 87-92)* **2-3** Use Arrays to Find Totals *(pp. 93-98)* **2-4** Make Arrays to Find Totals *(pp. 99-104)* **2-5 Math Practices and Problem Solving: Model With Math** *(pp. 105-110)*	**Topic 2:** • even • odd • array • rows • columns • bar diagram
	Assessment Options:	**Topic 2 Assessment –** Work with Equal Groups *(print or online) (pp. 115-116)* **Topic 2 Performance Assessment –** Work with Equal Groups *(pp. 117-118)*	

	Assessment Tasks – Topic 2	
	Procedural Check	**Application Task**
2.OA.3	Add. Identify the sum as odd or even. 2 + 2 = _____ Odd Even 3 + 2 = _____ Odd Even 4 + 2 = _____ Odd Even 5 + 2 = _____ Odd Even (DOK 1)	Explain. When you add two even numbers the sum is even When you add an odd and an even number the sum is odd. Use pictures to justify your explanations. (DOK 3) If you double a number, is it always even. Use words, pictures, and numbers to justify your answer. (DOK 3)
2OA.4	Solve. X X X X X X X X X X X X X X X _____ + _____ + _____ = _____ (DOK 2)	Mrs. Watson placed cookie dough on the pan. She made 4 rows with 3 scoops of dough in each row. Draw a picture and write an equation to find the total number of cookies. (DOK 3)

DWSBB 1: August 24 – November 11 **Flexible Pacing: 52 days**

NUMBER AND OPERATIONS IN BASE TEN (NBT)
Topic 3 - Add Within 100 Using Strategies
Topic 4 – Fluently Add Within 100

Report Card Learning Targets:
I can….
- Solve one and two-step word problems within 100 using addition and subtraction
- Understand place value to the hundreds place
- Fluently add two-digit numbers

TOPICS 3 AND 4

Coherence		**pp. 119C-119D**
Look back: **Grade 1-** • Understand Place Value • Add and Subtract Tens and Ones • Addition and Subtraction Word Problems	**Topics 3 and 4:** • Compose and Decompose Tens and Ones • Mental Math • Connect Addition and Subtraction • Regroup Ones and Tens • Put It All Together • One-Step and Two-Step Problems	**Look ahead:** **Later in Grade 2-** • Add and Subtract Within 100 to Solve Problems • Add and Subtract Within 1,000 **Grade 3-** • Fluently Add and Subtract Within 1,000
Rigor		**p. 119E**
Conceptual Understanding: • Understand the Inverse Relationship Between Addition and Subtraction • Tens and Ones	**Procedural Skill and Fluency:** • Regroup	**Applications:** • One-Step and Two-Step Problems

Focus	**Strand: Mathematical Practice Standard #5 and #4** **p. 119F**
2.MP.5 **2.MP.4**	**5. Use appropriate tools strategically.** (Topic 3) Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm. ***Second grade students use tools such as an open number line, a hundred chart, place-value blocks, and bar diagrams to solve addition and subtraction problems.***

	I can identify available tools. I can think about correct tools to use without prompting. I use tools correctly and accurately. I know when to use a particular tool. I can decide if the results obtained using a tool make sense. **4. Model with mathematics.** (Topic 4) Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. ***Second grade students apply addition and subtraction strategies to model one- and two-step word problems.*** I can identify the correct prior knowledge that needs to be applied to solve a problem. I can use numbers, symbols, and words to solve problems. I can identify the operation(s) needed to solve a problem.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.NBT.5 **2.NBT.6** **2.NBT.8** **2.NBT.9** **(2.NBT.B)**	**Strand: Numbers and Operations in Base Ten** Second grade students will use place value understanding and properties of operations to add and subtract. **Standard 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Standard 2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations. **Standard 2.NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. **Standard 2.NBT.9** Explain why addition and	**Topic 3: Add Within 100 Using Strategies** *(pp. 119I-119K)* **3-1** Add Tens and Ones on a Hundred Chart *(pp. 123-128)* **3-2** Add Tens on an Open Number Line *(pp. 129-134)* **3-3** Add Tens and Ones on an Open Number Line *(pp. 135-140)* **3-4** Break Apart Numbers to Add *(pp.141-146)* **3-5** Continue to Break Apart Numbers to Add *(pp. 147-152)* **3-6** Add Using Compensation *(pp. 153-158)* **3-7** Practice Adding Using Strategies *(pp. 159-164)* **3-8** Solve One-Step and Two-Step Problems *(pp. 165-170)* **3-9 Math Practices and Problem Solving:**	**Topic 3:** • tens • ones • open number line • break apart • mental math • compensation

	subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects.	**Use Appropriate Tools** *(pp. 171-176)* **Topic 4: Fluently Add Within 100** *(pp. 189A-189C)* **4-1** Add With Partial Sums *(pp. 193-198)* **4-2** Continue to Add with Partial Sums *(pp. 199-204)* **4-3** Models to Add 2-Digit Numbers *(pp. 205-210)* **4-4** Add 2-Digit Numbers *(pp. 211-216)* **4-5** Add More than Two 2-Digit Numbers *(pp. 217-222)* **4-6** Practice Adding *(pp. 223-228)* **4-7** Solve One-Step and Two-Step Problems *(pp. 229-234)* **4-8 Math Practices and Problem Solving: Model With Math** *(pp. 235-240)*	**Topic 4:** • partial sum • regroup • compatible numbers
	Assessment Options: **Topic 3 Assessment –** Add Within 100 Using Strategies *(print or online) (pp. 183-186)* **Topic 3 Performance Assessment -** Add Within 100 Using Strategies *(pp. 187-188)*	**Topic 4 Assessment –** Fluently Add Within 100 *(print or online) (pp. 247-250)* **Topic 4 Performance Assessment -** Fluently Add Within 100 *(pp. 251-252)*	

District Wide Standards-based Benchmark #1 due by November 11		
	Assessment Tasks – Topics 3 and 4	
	Procedural Check	**Application Task**
2.NBT.5	6 + 4 = _____ so, _____ - 4 = 6 3 + _____ = 10 so, 10 – 3 = _____ (DOK 2)	Jayce brought 18 cupcakes to school for her birthday. She had 12 yellow cupcakes. The rest were chocolate. Draw a picture and write an equation to find out the number of chocolate cupcakes. (DOK 2) Summer had 12 questions on her math test. There were 5 questions left to answer. How many questions had Summer answered? Use ten-frames to justify your answer. (DOK 3)
2.NBT.6	Add 21 + 45 = 60 + 33 + 11 = 16 + 25 + 39 + 55 = (DOK 1)	Susan picked 17 apples, Johnny pick 27 apples and Lee picked 44. How many apples did they pick altogether? Use what you know about place value to explain your thinking and prove your answer is correct. (DOK 3)
2.NBT.8	Use mental math to solve. 181 + 10 293 + 100 637 – 10 985 – 100	The population of Spruceville grew at a rate of 100 people every year. If the population was 1285 in the year 2001, what was the population in 2010? Make a chart to justify your answer. (DOK 3) Martin added $100 to his account. Jane added $10 to her account. If Martin started with $19 and Jane started with $119, who had more money? Use mental math and explain your thinking.

	(DOK 1)	(DOK 2)
2.NBT.9	22 + 15 = 15 + _____ 9 + 11 = _____ + 2 35 + 5 + 5 = 10 + _____ (DOK 2)	Pancho ran 3 miles on Wednesday, 6 miles on Friday and 4 miles on Sunday. He said he ran 13 miles because 6 + 4 = 10 and 10 + 3 = 13. Carter says Pancho is not correct because he needs to add the numbers in order, 3 + 6 + 4 and not out of order, 6 + 4 + 3. Who is correct? Use pictures, numbers and/or words to tell if his thinking makes sense. (DOK 3)

2nd Grade

DWSBB 2: November 14 – February 9 **Flexible Pacing: 51 days**

NUMBER AND OPERATIONS IN BASE TEN (NBT)
Topic 5 – Subtract Within 100 Using Strategies
Topic 6 – Fluently Subtract Within 100

Report Card Learning Targets:
I can….

- Solve one and two-step word problems within 100 using addition and subtraction
- Understand place value to the hundreds place
- Fluently subtract two-digit numbers

TOPICS 5 and 6

Coherence		**pp. 119AC-119D**
Look back: **Grade 1-** • Understand Place Value • Add and Subtract Tens and Ones • Addition and Subtraction Word Problems	**Topics 5 and 6:** • Compose and Decompose Tens and Ones • Mental Math • Connect Addition and Subtraction • Regroup Ones and Tens • Put It All Together • One-Step and Two-Step Problems •	**Look ahead:** **Later in Grade 2-** • Add and Subtract Within 100 to Solve Problems • Add and Subtract Within 1,000 **Grade 3-** • Fluently Add and Subtract Within 1,000

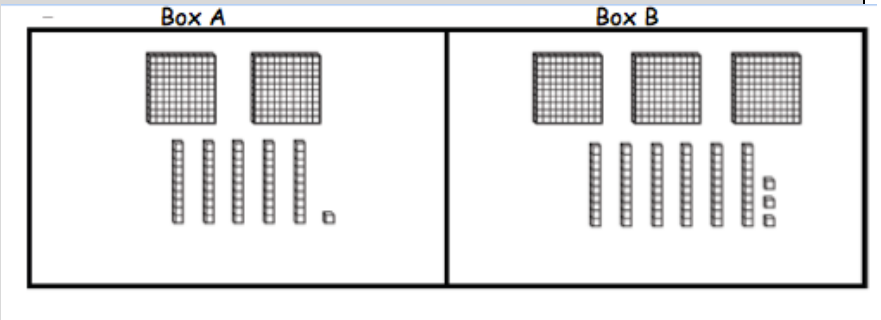
Rigor		**p. 119E**
Conceptual Understanding: • Understand the Inverse Relationship Between Addition and Subtraction • Tens and Ones	**Procedural Skill and Fluency:** • Regroup	**Applications:** • One-Step and Two-Step Problems

Focus	**Strand: Mathematical Practice Standard #3 and #2** **p. 119F**
2.MP.3 **2.MP.2**	**3. Construct viable arguments and critique the reasoning of others.** (Topic 5) Use state assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.

	Second grade students use pictures, words, or equations to explain their strategy for finding a sum or difference. I can ask questions to understand other people's thinking. I can identify mistakes in other people's thinking. I can provide suggestions for improving other people's thinking. **2. Reason abstractly and quantitatively.** (Topic 6) Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects. ***Second grade students use quantitative reasoning as they translate the quantities in a word problem into an addition or subtraction equation.*** I can identify and understand the quantities in the problem. I can show and explain how quantities are related (e.g. bar diagram). I can translate real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations. I can connect numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
2.NBT.5 **2.NBT.6** **2.NBT.7** **2.NBT.8** **2.NBT.9** **(2.NBT.B)**	**Strand: Numbers and Operations in Base Ten** Second grade students will use place value understanding and properties of operations to add and subtract. **Standard 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Standard 2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations. **Standard 2.NBT.7** Add and subtract within 1,000 using concrete models or drawings and strategies	**Topic 5: Subtract Within 100 Using Strategies** *(pp. 253A-253C)* **5-1** Subtract Tens and Ones on a Hundred Chart *(pp. 255-260)* **5-2** Count Back to Subtract on an Open Number Line *(pp. 261-266)* **5-3** Continue to Count Back to Subtract on an Open Number Line *(pp. 267-272)* **5-4** Add Up to Subtract Using an Open Number Line *(pp. 273-278)* **5-5** Break Apart Numbers to Subtract *(pp. 279-284)* **5-6** Continue to Break Apart Numbers to Subtract *(pp. 285-290)* **5-7** Subtract Using Compensation *(pp. 291-296)*	**Topic 5:** No new vocabulary words Review as needed

	based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones, and that it is sometimes necessary to compose or decompose tens or hundreds. **Standard 2.NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. **Standard 2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects.	**5-8** Solve One-Step and Two-Step Problems *(pp. 297-302)* **5-9 Math Practices and Problem Solving: Critique Reasoning** *(pp. 303-308)* **Topic 6: Fluently Subtract Within 100** *(pp. 321A-321C)* **6-1** Regroup 1 Ten for 10 Ones *(pp. 323-328)* **6-2** Models to Subtract 2-Digit and 1-Digit Numbers *(pp. 329-334)* **6-3** Subtract 2-Digit and 1-Digit Numbers *(pp. 335-340)* **6-4** Models to Subtract 2-Digit Numbers *(pp. 341-346)* **6-5** Subtract 2-Digit Numbers *(pp. 347-352)* **6-6** Use Addition to Check Subtraction *(pp. 353-358)* **6-7** Practice Subtracting *(pp. 359-364)* **6-8** Solve One-Step and Two-Step Problems *(pp. 365-370)* **6-9 Math Practices and Problem Solving: Reasoning** *(pp. 371-376)*	**Topic 6:** No new vocabulary words Review as needed
	Assessment Options: **Topic 5 Assessment –** Subtract Within 100 Using Strategies *(print or online) (pp. 315-318)* **Topic 5 Performance Assessment –** Subtract Within 100 Using Strategies *(pp. 319-320)*	**Topic 6 Assessment –** Fluently Subtract Within 100 *(print or online) (pp. 383-386)* **Topic 6 Performance Assessment –** Fluently Subtract Within 100 *(pp. 387-388)*	

	Assessment Tasks – Topics 5 and 6	
	Procedural Check	**Application Task**
2.NBT.5	Fill in the missing numbers. 55, ____, 45, 40, _____ , 30 120, 110, _____ , 90, _____ , 70 875, _____, 675, 575, _____, 375 (DOK 1)	Rory earned $52 helping his father. If he spends $10 a month on movies. How many months can he rent movies? Will he have any money left? Justify your answer. (DOK 3)  What is the sum of Box A and Box B? How many fewer blocks are in Box A than Box B? Use the picture to justify your answer. (DOK 3)
2.NBT.6	Add. 29 + 31 + 16 + 44 = _____ 12 + 25 + 28 + 15 = _____ (DOK 1)	Juan made the following scores on his math tests: 28, 31, 22, and 29. He wanted to know how many points he had scored all together. Write an explanation of a way to combine addends so that Juan could quickly add the scores. Use a drawing to help you explain your thinking. (DOK 3) Devin wrote down the number of points scored by his favorite NBA player. Game 1 – 13, Game 2 – 21, Game 3 _____ . He forgot to write the points for Game 3, but he read that the player had scored 53 points in the three game series. How many points did the player score in Game 3? Use words, pictures, and numbers to justify your answer. (DOK 3)

2.NBT.7	Add. 192 + 537 = 384 + 140 = 355 – 123 = 222 – 11 = (DOK 1)	Michael's reading goal was 600 pages. By March, Michael had read 478 pages. How many more pages did he need to read to reach his goal? How many pages above his goal would he be if he read 200 more pages? (DOK 2) Reggie was given the following problem: 327 + 509 He wrote the answer 386. Use words and pictures of place value blocks to show Reggie what he did and how he could solve the problem correctly. (DOK 3)
2.NBT.8	Solve the following problems mentally. 245 – 10 829 – 100 703 - 100 (DOK 1)	Two students were given the following problem to solve mentally. 604 – 10 Flora said the answer was 594. Joe said the answer was 504. Who was correct? Explain the mistake that was made. (DOK 2) What is 50 more than 85? Explain your thinking. (DOK 2)
2.NBT.9	Use the properties of addition to make adding easier. 24 + 9 + 16 = _____ 7 + 46 + 23 = _____ (DOK 1)	The second classes at Newmont Elementary have 26, 24, and 27 students. Solve using mental math. Explain your thinking. (DOK 2) Jerry bought 17 tickets at the fair. His brother gave him 9 more. Sally had 9 tickets from last year and she bought 17 tickets when she got to the fair. Do Jerry and Sally have the same number of tickets? How do you know? Explain using pictures, numbers and/or words. (DOK 3)

DWSBB 2: November 14 – February 9 **Flexible Pacing: 51 days**

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 7 – More Solving Problems Involving Addition and Subtraction

Report Card Learning Targets:
I can….
- Solve one and two-step word problems within 100 using addition and subtraction

TOPIC 7

Coherence		**pp. 389C-389D**
Look back: **Grade 1-** • Addition and Subtraction Equations **Earlier in Grade 2-** • Add and Subtract Within 100	**Topic 7:** • Solve One-Step Addition and Subtraction Problems • Solve Two-Step Addition and Subtraction Problems	**Look ahead:** **Later in Grade 2-** • Add and Subtract Within 1,000 • Measurement Problems **Grade 3-** • Fluently Add and Subtract Within 1,000 • Solve Two-Step Problems Involving All Operations

Rigor		**p. 389E**
Conceptual Understanding: • Understand Different Problem Situations	**Procedural Skill and Fluency:** • Represent Addition and Subtraction Problems • Use Representations to Solve Problems	**Applications:** • Real-World Contexts

Focus	**Strand: Mathematical Practice Standard #2** **p. 389F**
2.MP.2	**Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects. ***Second grade students represent addition and subtraction word problems using numbers and symbols.*** I can identify and understand the quantities in the problem. I can show and explain how quantities are related. I can translate real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations. I can connect numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
2.OA.1 (2.OA.A)	**Strand: Operations and Algebraic Thinking** Second grade students will represent and solve problems involving addition and subtraction. **Standard 2.OA.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions by, *for example, using drawings and equations with a symbol for the unknown number to represent the problem.*	**Topic 7: More Solving Problems Involving Addition and Subtraction** *(pp. 389I-389J)* **7-1** Represent Addition and Subtraction Problems *(pp. 391-396)* **7-2** Mixed Practice: Solve Addition and Subtraction Problems *(pp. 397-402)* **7-3** Continue Practice with Addition and Subtraction Problems *(pp. 403-408)* **7-4** Solve Two-Step Problems *(pp.409-414)* **7-5** Continue to Solve Two-Step Problems *(pp. 415-420)* **7-6 Math Practices and Problem Solving: Reasoning** *(pp. 421-426)*	**Topic 7:** No new vocabulary words Review as needed
	Assessment Options:	**Topic 7 Assessment –** More Solving Problems Involving Addition and Subtraction *(print or online) (pp. 431-432)* **Topic 7 Performance Assessment –** More Solving Problems Involving Addition and Subtraction *(pp. 433-434)*	

	Assessment Tasks – Topic 7	
	Procedural Check	**Application Task**
2.OA.1	Solve each equation. 11 + 1 – 6 = ? 12 + ? – 3 = 11 ? – 9 + 15 = 16 (DOK 1)	Solve each problem. Draw pictures to justify your answers. 1. Demetri had 14 pennies. Chase gave him some more. Now Demetri has 20 pennies. How many pennies did Chase give him? 2. Talia and Becca put 17 pennies in a jar. Talia put in 9 pennies. How many pennies did Becca put in the jar? 3. Lyla has 8 more pennies than Scott. Lyla has 15 pennies. How many pennies does Scott have? (DOK 3)

DWSBB 2: November 14 – February 9 **Flexible Pacing: 51 days**

MEASUREMENT AND DATA (MD)
Topic 8 – Work with Time and Money

Report Card Learning Targets:
I can….
- Tell and write time to the nearest 5 minutes
- Solve problems involving money

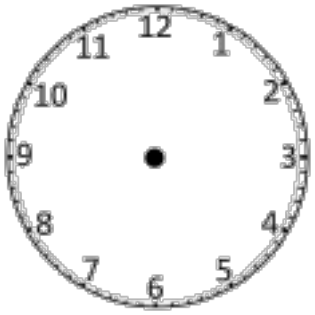
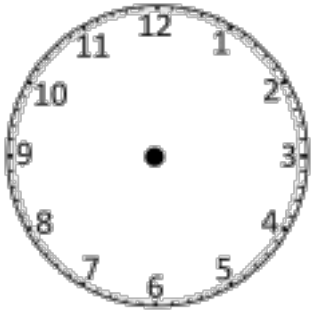
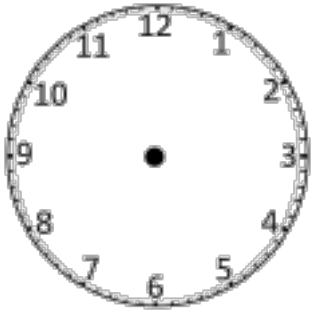
TOPIC 8

Coherence		**pp. 435C-435D**
Look back: **Grade 1-** • Time **Earlier In Grade 2-** • Work with Equal Groups	**Topic 8:** • Solve Problems with Coins and Bills • Tell Time • Equivalence • Count Money and Tell Time	**Look ahead:** **Later in Grade 2-** • Skip Count • Measure Length **Grade 3-** • Time to the Minute and Elapsed Time

Rigor		**p. 435E**
Conceptual Understanding: • Count Money • Extend Time Concepts	**Procedural Skill and Fluency:** • Count Coins and Bills • Tell Time to the Nearest 5 Minutes	**Applications:** • Real-World Contexts

Focus	**Strand: Mathematical Practice Standard # 2** **p. 435F**
2.MP.2	**Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects. ***Second grade students reason about the values of coins and find different ways to make the same total value.*** I can identify and understand the quantities in the problem. I can show and explain how quantities are related (e.g., equation). I can translate real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations. I can connect numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
2.MD.7 **2.MD.8** **(2.MD.C)**	**Strand: Measurement and Data** Second grade students work with time and money. **Standard 2.MD.7** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. **Standard 2.MD.8** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *For example, if you have 2 dimes and 3 pennies, how many cents do you have?*	**Topic 8: Work with Time and Money** *(pp.435I-435K)* **8-1** Solve Problems with Coins *(pp. 443-448)* **8-2** Continue to Solve Problems with Coins *(pp. 449-454)* **8-3** Solve Problems with Dollar Bills *(pp. 455-460)* **8-4** Continue to Solve Problems with Dollar Bills *(pp. 461-466)* **8-5 Math Practices and Problem Solving: Reasoning** *(pp. 467-472)* **8-6** Tell Time to Five Minutes *(pp. 473-478)* **8-7** Tell Time Before and After the Hour *(pp. 479-484)* **8-8** A.M. and P.M. *(pp. 485-490)*	**Topic 8:** • dime • nickel • penny • quarter • half-dollar • cents • greatest value • least value • dollar • dollar sign • dollar bills • tally marks • quarter past • half past • quarter to • a.m. • p.m.
	Assessment Options:	**Topic 8 Assessment –** Work with Time and Money *(print or online)* *(pp. 497-500)* **Topic 8 Performance Assessment –** Work with Time and Money *(pp. 501-502)*	
District Wide Standards-based Benchmark #2 due by February 9			
	Assessment Tasks – Topic 8		

	Procedural Check	Application Task
2.MD.7	Draw the hands on each clock to show the time. DOK 1  2:10  11:40  5:15	Carson and his family started their hike at 9:45 a.m. They hiked for 50 minutes before they took a rest. What time was it when they took their first rest? If they ate lunch at 12:00 p.m., how long had it been since they started their hike? (DOK 2) Baseball practice starts at the time shown on the clock. What time does practice start? Is it a.m. or p.m.? Explain your reasoning. (DOK 2) 

2.MD.8	Suzy found six coins in the couch. Three are dimes, two are nickels and one penny. How much money did Suzy find? (DOK 1)	Wally's father gave him the change from the bowl on his desk. Wally received 2 quarters, 2 dimes, 1 nickel, and 4 pennies. Did Wally have enough money for a $0.99 burger? Use a drawing to justify your answer. (DOK 3) Butch had 8 coins that added up to 25¢. What coins does Butch have? Use pictures, words and numbers to justify your answer. (DOK 3)

DWSBB 3: February 13 – April 28 **Flexible Pacing: 48 days**

NUMBER AND OPERATIONS IN BASE TEN (NBT)
Topic 9 – Numbers to 1,000

Report Card Learning Targets:
I can….
- Understand place value to the hundreds place
- Count, read and write numbers to 1000
- Compare 3-digit numbers using symbols

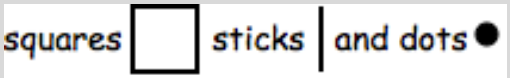
TOPIC 9

Coherence		**pp. 503C-503D**
Look back: **Grade 1-** • Place Value with 2-Digit Numbers • Number Patterns • Compare 2-Digit Numbers	**Topic 9:** • Place Value with 3-Digit Numbers • Compare 3-Digit Numbers • Place-Value Patterns	**Look ahead:** **Later in Grade 2-** • Add and Subtract Within 1,000 **Grade 3-** • Round Whole Numbers • Fluently Add and Subtract Within 1,000

Rigor		**p. 503E**
Conceptual Understanding: • Understand the Base-10 System • Decompose Numbers in More Than One Way • Connect Skip Counting to Place Value	**Procedural Skill and Fluency:** • Represent Numbers in Different Ways • Compare 3-Digit Numbers	**Applications:** • Real-World Contexts

Focus	**Strand: Mathematical Practice Standard #7** **p. 503F**
2.MP.7	**Look for and make use of structure.** Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects. ***Second grade students describe patterns in digits by making use of a hundred chart or a series of numbers.*** I can analyze and describe patterns in numbers. I can analyze and describe common attributes and patterns in shapes and solids. I can analyze expressions, equations, procedures, and objects to represent, describe, and work with them in different ways.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
2.NBT.1 **2.NBT.2** **2.NBT.3** **2.NBT.4** **(2.NBT.A)**	**Strand: Number and Operations in Base Ten** Second grade students will understand place value. **Standard 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; *for example, 706 equals 7 hundreds, 0 tens, and 6 ones*. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). **Standard 2.NBT.2** Count within 1,000; skip-count by fives, tens, and hundreds. **Standard 2.NBT.3** Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form. **Standard 2.NBT.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	**Topic 9: Numbers to 1,000** *(pp. 503I-503L)* **9-1** Understand Hundreds *(pp. 511-516)* **9-2** Models and 3-Digit Numbers *(pp. 517-522)* **9-3** Name Place Values *(pp. 523-528)* **9-4** Read and Write 3-Digit Numbers *(pp. 529-534)* **9-5** Different Ways to Name the Same Number *(pp. 535-540)* **9-6** Place-Value Patterns with Numbers *(pp. 541-546)* **9-7** Skip Count by 5s, 10s, and 100s to 1,000 *(pp. 547-552)* **9-8** Compare Numbers Using Place Value *(pp. 553-558)* **9-9** Compare Numbers on the Number Line *(pp. 559-564)* **9-10 Math Practices and Problem Solving: Look For and Use Structure** *(pp. 565-570)*	**Topic 9:** • hundred • thousand • digit • place-value chart • standard form • expanded form • word form • compare • greater than (>) • less than (<) • equals (=) • decrease • increase
	Assessment Options:	**Topic 9 Assessment –** Numbers to 1,000 *(print or online) (pp. 577-580)* **Topic 9 Performance Assessment –** Numbers to 1,000 *(pp. 581-582)*	

<table>
<tr><th></th><th colspan="2">Assessment Tasks – Topic 9</th></tr>
<tr><th></th><th>Procedural Check</th><th>Application Task</th></tr>
<tr><td>2.NBT.1</td><td>Complete the chart.
<table>
<tr><td></td><td>Hundreds</td><td>Tens</td><td>Ones</td></tr>
<tr><td>153</td><td></td><td></td><td></td></tr>
<tr><td>207</td><td></td><td></td><td></td></tr>
<tr><td>481</td><td></td><td></td><td></td></tr>
<tr><td>960</td><td></td><td></td><td></td></tr>
</table>
(DOK 1)</td><td>Brian used 

to model 462. Show Brian's drawing. What would Brian have to do to show 472? Use your drawing to justify your answer.

(DOK 3)</td></tr>
<tr><td>2.NBT.2</td><td>Fill in the missing numbers.
15, 20, _____ , 30, 35, _____
30, ____ , 50, 60, 70, _____, 80
220, 230, _____ , 250
600, _____ , 800, 900, _____

(DOK 1)</td><td>James emptied his piggy bank and then counted his coins. Use skip counting to find out the total amount of money James had saved. Draw a picture to represent the money.
50 pennies
14 nickels
12 dimes
(DOK 3)

Each group of four students made handprints of both of their hands. Skip count to find the total number of fingers on the picture. Use words, numbers, and pictures to justify your answer.
(DOK 3)</td></tr>
<tr><td>2.NBT.3</td><td>Fill in the blanks.
56 = _____ hundreds, ____ tens, ____ ones
740 = _____ hundreds, ____ tens, ____ ones
108 = _____ hundreds, ____ tens, ____ ones

(DOK 1)</td><td>Logan and Betsy were playing a video game.
Logan had nine hundred eighty-four points.
Betsy had seven hundred twelve points.
Who had the most points?
How many more points did each person need to reach the goal of one thousand points?
(DOK 2)

What numbers can you make that are below 100 and have a 4 in the tens place? Use a place-value chart to prove your answer.

(DOK 3)</td></tr>
</table>

		Stuart's grandmother sent him a check for his birthday. The amount on the check said, "one hundred twenty-five dollars". He received another check for thirty-eight dollars. Write an equation to find the total amount of money Stuart received. Use a place-value chart to prove your answer. (DOK 3)
2.NBT.4	Use <, >, or = to compare each pair of numbers. 111 97 524 623 321 322 (DOK 1)	The students at Knollwood Elementary earn tickets for following the school rules. Class A earned 202 tickets. Class B earned 200 tickets. Class C earned 222 tickets. Which class had the most tickets? Write the number of tickets in order from the greatest to the least. Create a chart to prove your answer. (DOK 3) My tens digit is 5 more than my ones digit. What could my number be? Use a place-value chart to prove your answer. (DOK 3) Which is greater 4 hundreds, 7 tens, and 3 ones or 2 hundreds, 33 tens, and 8 ones? Use words and pictures to justify your answer. (DOK 3)

2nd Grade

DWSBB 3: February 13 – April 28 **Flexible Pacing: 48 days**

NUMBER AND OPERATIONS IN BASE TEN (NBT)
Topic 10 – Add Within 1,000 Using Models and Strategies
Topic 11 – Subtract Within 1,000 Using Models and Strategies

Report Card Learning Targets:
I can….
- Understand addition to 1000 using models
- Understand subtraction to 1000 using models
- Fluently add two-digit numbers
- Fluently subtract two-digit numbers

TOPICS 10 and 11

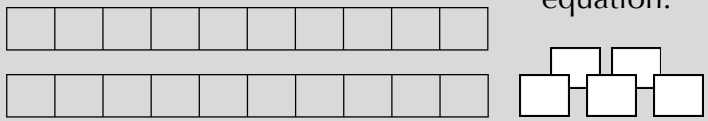
Coherence		**pp. 583C-583D**
Look back: **Grade 1-** • Addition Within 100 • Subtract Tens **Earlier In Grade 2-** • Fluently Add and Subtract Within 100 • Place Value Within 1,000	**Topics 10 and 11:** • Connect Addition and Subtraction • Explain Strategies	**Look ahead:** **Later in Grade 2-** • Addition and Subtraction with Measurement **Grade 3-** • Multi-Digit Arithmetic

Rigor		**p. 583E**
Conceptual Understanding: • Understand Regrouping When Adding or Subtracting 3-Digit Numbers • Understand Why Addition and Subtraction Strategies Work	**Procedural Skill and Fluency:** • Using Place-Value Strategies	**Applications:** • Addition and Subtraction Situations

Focus	**Strand: Mathematical Practice Standards #8 and #1** **p. 583F**
2.MP.8 **2.MP.1**	**8. Look for and express regularity in repeated reasoning.** (Topic 10) Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. ***Second grade students generalize an efficient method for subtraction by repeatedly regrouping.***

	I can notice and describe when certain calculations or steps in a procedure are repeated. I can generalize from examples or repeated observations. I can recognize and understand appropriate short cuts. I can evaluate the reasonableness of intermediate results. **1. Make sense of problems and persevere in solving them.** (Topic 11) Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Upon finding a solution, look back at the problem to determine if the solution is reasonable and accurate, often checking answers to problems using a different method or approach. ***Second grade students persevere as they solve two-step problems, in which they need to make sense of a variety of problem types.*** I can give a good explanation of the problem. I can think about a plan before jumping into the solution. I can think of similar problems, try special cases, or use a simpler form of the problem. I can, if needed, organize data or use representations to help make sense of the problem. I can identify likely strategies for solving the problem. I can pause when solving problems to make sure that the work being done makes sense. I can make sure the answer makes sense before stopping work.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.NBT.5 **2.NBT.6** **2.NBT.7** **2.NBT.8** **2.NBT.9** **(2.NBT.B)**	**Strand: Number and Operations in Base Ten** Second grade students will use place value understanding and properties of operations to add and subtract. **Standard 2.NBT.5** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **Standard 2.NBT.6** Add up to four two-digit numbers using strategies based on place value and properties of operations.	**Topic 10: Add Within 1,000 Using Models and Strategies** *(pp. 583I-583K)* **10-1** Add 10 and 100 *(pp. 585-590)* **10-2** Add on an Open Number Line *(pp. 591-596)* **10-3** Add using Mental Math *(pp. 597-602)* **10-4** Add using Partial Sums *(pp. 603-608)* **10-5** Use Models to Add *(pp. 609-614)* **10-6** Explain Addition Strategies *(pp.615-620)* **10-7** **Math Practices and Problem Solving: Repeated Reasoning** *(pp. 621-626)*	**Topic 10:** No new vocabulary words Review as needed

	Standard 2.NBT.7 Add and subtract within 1,000 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and that it is sometimes necessary to compose or decompose tens or hundreds. **Standard 2.NBT.8** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. **Standard 2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. Explanations may be supported by drawings or objects.	**Topic 11: Subtract Within 1,000 Using Models and Strategies** *(pp.635A-635C)* **11-1** Subtract 10 and 100 *(pp. 637-642)* **11-2** Count Back to Subtract on an Open Number Line *(pp. 643-648)* **11-3** Add Up to Subtract on an Open Number Line *(pp. 649-654)* **11-4** Subtract Using Mental Math *(pp. 655-660)* **11-5** Use Models to Subtract *(pp. 661-666)* **11-6** Explain Subtraction Strategies *(pp. 667-672)* **11-7 Math Practices and Problem Solving: Make Sense and Persevere** *(pp. 673-678)*	**Topic 11:** No new vocabulary words Review as needed
	Assessment Options: **Topic 10 Assessment –** Add Within 1,000 Using Models and Strategies *(print or online) (pp. 631-632)* **Topic 10 Performance Assessment –** Add Within 1,000 Using Models and Strategies *(pp. 633-634)*	**Topic 11 Assessment –** Subtract Within 1,000 Using Models and Strategies *(print or online) (pp. 683-684)* **Topic 11 Performance Assessment –** Subtract Within 1,000 Using Models and Strategies *(pp. 685-686)*	

	Assessment Tasks – Topics 10 and 11	
	Procedural Check	**Application Task**
2.NBT.5	Solve 36 and 42. Add the ones: _____ + _____ = _____ Add the tens: _____ + _____ = _____ Add each sum: _____ + _____ = _____ (DOK 1)	Use the following image to write a word problem and an equation.  (DOK 2) What two numbers have a difference of 37? Use words, numbers, and pictures to justify your answer. (DOK 3)
2.NBT.6	22 cars are red 61 cars are yellow 10 cars are green 13 cars are white How many cars are there in all? (DOK 1)	The second grade class is going on a field trip. There are 56 students, 12 parents and 4 teachers. How many people are going on the field trip? Prove that you answer your answer is correct in two ways using pictures, words or numbers. (DOK 3)
2.NBT.7	Subtract. 154 273 - 31 - 42 (DOK 1)	Morris had 5 ten-dollar bills, 1 five-dollar bill, and 6 one-dollar bills. He owed his mother $19. Explain what Morris needed to do in order to give his mother the exact amount he owed her. Use a picture to justify your answer. (DOK 3) John estimated 367 marbles in the class marble jar. The class counted the marbles and counted 185 less. How many marbles were in the jar? Use words, pictures, and numbers to justify your answer. (DOK 3)

2.NBT.8	Solve the following problems mentally. 487 + 10 = _____ 250 + _____ = 260 699 + 100 = _____ 435 + _____ = 535 (DOK 1)	Each morning Mr. Crosswell would quiz his children on their way to school. He gave the following problem to Corinne and Blake: What number is 10 more than 299? Corinne said that the answer was 309. Blake said the answer was 399. Who was correct? Explain your answer and explain what was wrong. (DOK 3) Chase read 18 pages on Monday. When he opened his book on Wednesday, he was on page 48. How many pages did he read on Tuesday? Use words, numbers, and pictures to justify your answer. (DOK 3)
2.NBT.9	Add or subtract. $1.57 = _____ dollars _____ dimes _____ cents + $2.31 = _____ dollars _____ dimes _____ cents _____ dollars _____ dimes _____ cents $8.69 = _____ dollars _____ dimes _____ cents - $0. 59 = _____ dollars _____ dimes _____cents = _____ dollars _____ dimes _____ cents (DOK 2)	The Jones family began saving their change to donate to the community shelter. In one week, the family members saved the following amounts. Saundra saved 3 quarters, 10 dimes, 18 nickels, and 9 pennies. Russell saved 6 quarters, 3 nickels, and 21 pennies. Mrs. Jones saved 13 dimes, 4 nickels, and 17 pennies. Mr. Jones saved 8 quarters. How much money did each person save? All together how much did the children save? All together how much did the parents save? How much money did they have all together? Create a chart to solve the problem and justify your answers. (DOK 3)

2nd Grade

DWSBB 3: February 13 – April 28 **Flexible Pacing: 48 days**

MEASUREMENT AND DATA (MD)
Topic 12 – Measuring Length

Report Card Learning Targets:
I can….
- Measure and estimate lengths in standard units
- Solve problems involving length using addition and subtraction

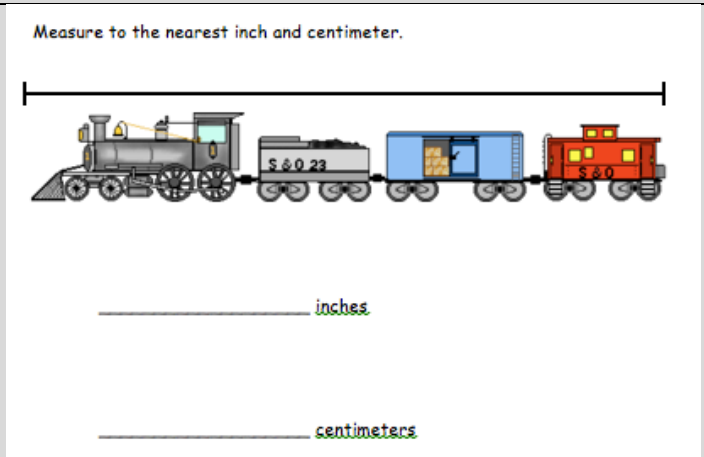
TOPIC 12

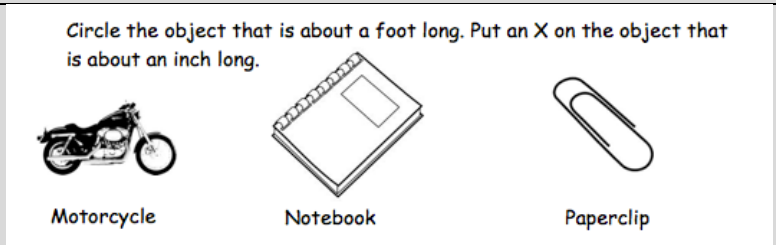
Coherence		**pp. 687C-687D**
Look back: **Grade 1-** • Measure by Using Indirect Comparisons • Measure by Iterating Length Units	**Topic 12:** • Estimate and Measure Length • Use Different Length Units • Addition, Subtraction, and Length	**Look ahead:** **Later in Grade 2-** • Addition and Subtraction with Measurement **Grade 3-** • Measure to the Nearest Fourth Inch and Half Inch

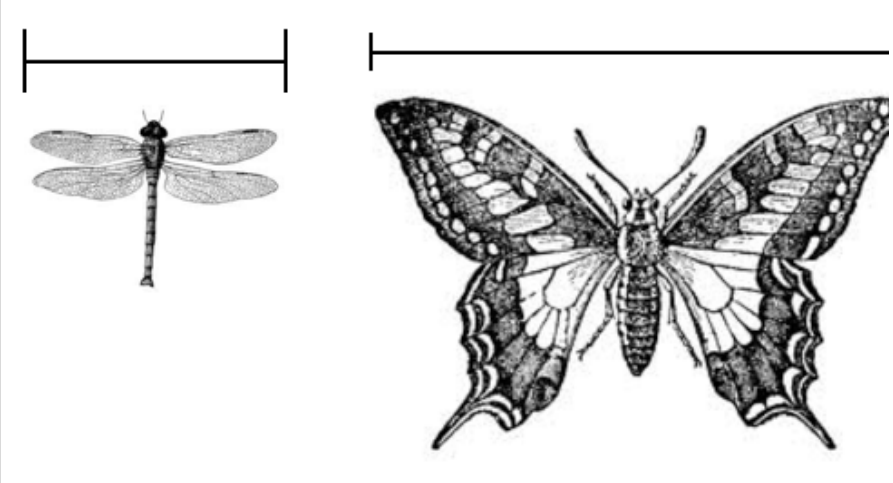
Rigor		**p. 687E**
Conceptual Understanding: • Understand the Relationship Between Measurement Units • Understand the Relationship Between the Size of the Unit and the Number of Units	**Procedural Skill and Fluency:** • Use Measurement Tools	**Applications:** • Real-World Measurement Situations

Focus	**Strand: Mathematical Practice Standard #6**	**p. 687F**
2.MP.6	**Attend to precision.** Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to their representations. Calculate accurately and efficiently, and use clear and concise notation to record their work. ***Second grade students attend to precision when considering both the number and the unit when measuring.*** I can compute accurately. I can use symbols appropriately. I can accurately use problem-solving strategies. I can specify and use units of measure appropriately.	

	I can decide whether an exact answer or estimate is needed. I can calculate efficiently, accurately, and fluently.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.MD.1 **2.MD.2** **2.MD.3** **2.MD.4** **(2.MD.A)**	**Strand: Measurement and Data** Second grade students will measure and estimate lengths in standard units. **Standard2.MD.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. **Standard 2.MD.2** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. **Standard 2.MD.3** Estimate lengths using units of inches, feet, centimeters, and meters. **Standard 2.MD.4** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. *For example, after measuring a pencil and a crayon, a student uses the measurements to determine that the pencil is two inches longer than the crayon.*	**Topic 12: Measuring Length** *(pp. 687I-687K)* **12-1** Estimating Length *(pp. 693-698)* **12-2** Measure with Inches *(pp. 699-704)* **12-3** Inches, Feet, and Yards *(pp. 705-710)* **12-4** Measure Length Using Different Customary Units *(pp. 711-716)* **12-5** Measure with Centimeters *(pp. 717-722)* **12-6** Centimeters and Meters *(pp. 723-728)* **12-7** Measure Length Using Different Metric Units *(pp. 729-734)* **12-8** Compare Lengths *(pp. 735-740)* **12-9 Math Practices and Problem Solving: Precision** *(pp. 741-746)*	**Topic 12:** • estimate • inch (in.) • foot (ft) • yard (yd) • height • nearest inch • centimeter (cm) • nearest centimeter • meter (m)
	Assessment Options:	**Topic 12 Assessment –** Measuring Length *(print or online) (pp. 753-756)* **Topic 12 Performance Assessment –** Measuring Length *(pp. 757-758)*	
District Wide Standards-based Benchmark #3 due by April 28			

	Assessment Tasks – Topic 12	
	Procedural Check	**Application Task**
2.MD.1	Circle the appropriate measuring tool. 1. What would you use to measure your height? measuring tape ruler yard stick 2. What would you use to measure your waist? Measuring tape ruler yard stick 3. What would you use to measure a paper clip? Measuring tape ruler yard stick 4. What would you use to measure a couch? Measuring tape ruler yard stick (DOK 1)	For each object: 1. Choose the most appropriate unit of measure (centimeter, inch, feet, or meter.) 2. Estimate the length. 3. Find the actual measure. 4. Create a chart to record your information. Objects: pencil, eraser, height of door, length of classroom. (DOK 2) Use a ruler to find objects that are the following lengths. 5 centimeters 10 centimeters 15 centimeters 20 centimeters Draw pictures of the ruler and each object. (DOK 2)
2.MD.2		Measure the length of your desk to the nearest inch. Then measure the length of your desk to the nearest centimeter. Describe how each measurement is related to the size of its unit. a. My desk is _____ inches long. b. My desk is _____ centimeters long. c. Why is measuring in centimeters different from measuring in inches? (DOK 2)

	(DOK 1)	On her paper, Susan wrote that the marker was 17. On his paper, Glen wrote that the marker was 7. Both students got the answer correct. How could this be? Use pictures, words, and numbers to justify your answer. (DOK 3)
2.MD.3	 (DOK 2)	Using centimeters as your unit of measure, estimate each of the following: • the width of your thumbnail • the length of your forearm • the length from your ankle to your hip Record each estimate. Compare your estimates with a classmate. (DOK 2)
2.MD.4	Measure two objects to determine which is longer once in centimeters and once in inches. Find the difference after each set of measurements. (DOK 1)	Have your students take several items out of their desks. Books, glue stick, pencil, crayon or scissors. Students are to measure 2 of the objects and record the length on their paper. Students then find the difference in length of the two items and write it on their paper. Repeat using centimeters or inches. (DOK 2)

		The lines show the wingspan of a dragonfly and a butterfly. How many centimeters longer is the butterfly's wingspan than the dragonfly's wingspan? Draw a picture of your ruler measurement.  (DOK 2)

2nd Grade

DWSBB 4: May 1 – June 6 **Flexible Pacing: 25 days**

MEASUREMENT AND DATA (MD)

Topic 13 – More Addition, Subtraction, and Length

Report Card Learning Targets:
I can….
- Measure and estimate lengths in standards units
- Solve problems involving length using addition and subtraction

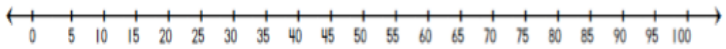
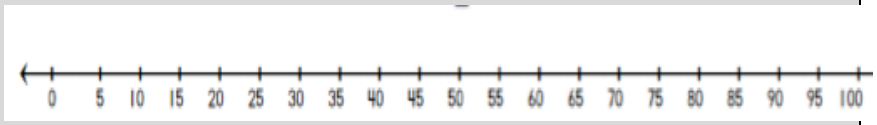
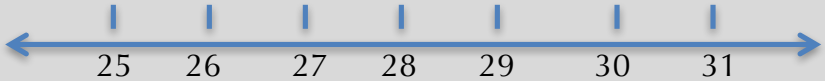
TOPIC 13

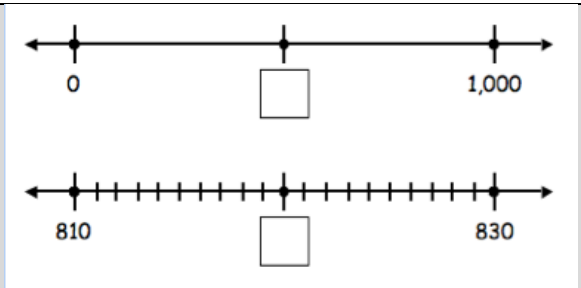
Coherence		**pp. 759C-759D**
Look back: **Grade 1-** • Measure Lengths **Earlier in Grade 2-** • Add and Subtract on a Number Line • Solve Problems Involving Addition and Subtraction • Measure Lengths	**Topic 13:** • Use Equations and Pictures • Solve Word Problems	**Look ahead:** **Grade 3-** • Use Addition and Subtraction to Solve Word Problems • Solve Word Problems Involving Time, Mass, and Liquid Volume • Perimeter

Rigor		**p. 759E**
Conceptual Understanding: • Understand Different Problem Situations • Represent Whole Numbers as Length	**Procedural Skill and Fluency:** • Addition and Subtraction Strategies	**Applications:** • Addition and Subtraction in Measurement Situations

Focus	**Strand: Mathematical Practice Standard #5** **p. 759F**
2.MP.5	**Use appropriate tools strategically.** Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm. ***Second grade students choose the best tools to measure the lengths of lines.*** I can identify available tools. I can think about correct tools to use without prompting.

	I can use tools correctly and accurately. I know when to use a particular tool. I can decide if the results obtained using a particular tool make sense.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.MD.5 **2.MD.6** **(2.MD.B)**	**Strand: Measurement and Data** Second grade students will relate addition and subtraction to length. **Standard 2.MD.5.** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units. *For example, use drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.* **Standard 2.MD.6** Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ... Represent whole-number sums and differences within 100 on a number line diagram.	**Topic 13: More Addition, Subtraction, and Length** *(pp.759I-759J)* **13-1** Add and Subtract with Measurements *(pp. 761-766)* **13-2** Find Unknown Measurements *(pp. 767-772)* **13-3** Continue to Find Unknown Measurements *(pp.773-778)* **13-4** Add and Subtract on a Number Line *(pp. 779-784)* **13-5** **Math Practices and Problem Solving: Use Appropriate Tools** *(pp. 785-790)*	**Topic 13:** No new vocabulary words Review as needed
	Assessment Options:	**Topic 13 Assessment –** More Addition, Subtraction, and Length *(print or online)* *(pp. 795-796)* **Topic 13 Performance Assessment –** More Addition, Subtraction, and Length *(pp. 797-798)*	

	Assessment Tasks – Topic 13	
	Procedural Check	**Application Task**
2.MD.5	A building is 80 feet tall. A nearby tree is 45 feet tall. How much taller is the building? Show how you solved the problem on the number line.  (DOK 2)	Use a drawing and write an equation to solve the problem and justify your answer There are two ribbons. The total length of the two ribbons is 97 centimeters. The longer ribbon is 55 centimeters. Find the length of the shorter ribbon. (DOK 3) A snake was 35 inches long. Now it is 60 inches. How much did the snake grow? Use the number line to justify your answer.  (DOK 3)
2.MD.6	Use the number line to subtract.  28 – 3 29 – 5 31 – 4 31 – 6 (DOK 1)	The students in Mrs. Gland's class recorded the number of seconds it took them to read 100 words. Adalee got faster each time she read. Week 1 – 62 seconds Week 2 – 60 seconds Week 3 – 59 seconds Week 4 – she went down by 3 seconds Week 5 – 51 seconds Create a number line to show Adalee's progress. (DOK 2)

		 What number would go in each of the boxes? Explain how you know. (DOK 2)

2nd Grade

DWSBB 4: May 1 – June 6 **Flexible Pacing: 25 days**

MEASUREMENT AND DATA (MD)
Topic 14 – Graphs and Data

Report Card Learning Targets:
I can….
- Measure and estimate lengths in standard units
- Represent and interpret data

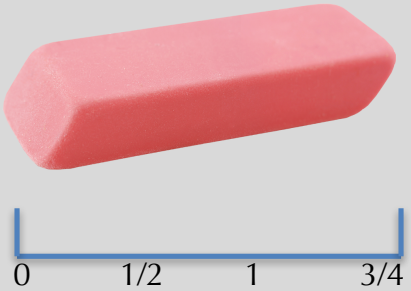
TOPIC 14

Coherence		**pp. 799C-799D**
Look back: **Grade 1-** • Solve Addition and Subtraction Problems Within 20 • Represent and Interpret Data **Earlier in Grade 2-** • Solve Addition and Subtraction Problems Within 100 • Measure Length	**Topic 14:** • Use Graphical Representation • Represent Categorical Data • Use Addition and Subtraction to Interpret Data • Generate and Represent Measurement Data	**Look ahead:** **Grade 3-** • Use Scaled Pictures and Bar Graphs • Include Fractions on Line Plots

Rigor		**p. 799E**
Conceptual Understanding: • Understand Line Plots • Understand Bar Graphs and Picture Graphs • Interpret Data on a Graph	**Procedural Skill and Fluency:** • Construct a Graph	**Applications:** • Real-World Contexts

Focus	**Strand: Mathematical Practice Standard #2** **p. 799F**
2.MP.2	**Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects. ***Second grade students use abstract reasoning when they use symbols in picture graphs to represent the frequency of categories of data.***

	I can identify and understand the quantities in the problem. I can show and explain how quantities are related (e.g., in a bar graph or picture graph). I can translate real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations. I can connect numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts.		
Focus	**Standards**	**Curriculum Supports – enVision 2.0**	**Vocabulary**
2.MD.9 **2.MD.10** **(2.MD.D)**	**Strand: Measurement and Data** Second grade students will represent and interpret data. **Standard 2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. **Standard 2.MD.10** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	**Topic 14: Graphs and Data** *(pp. 799I-799J)* **14-1** Line Plots *(pp. 803-808)* **14-2** More Line Plots *(pp. 809-814)* **14-3** Bar Graphs *(pp. 815-820)* **14-4** Picture Graphs *(pp. 821-826)* **14-5** Draw Conclusions from Graphs *(pp. 827-832)* **14-6 Math Practices and Problem Solving: Reasoning** *(pp. 833-838)*	**Topic 14:** • data • line plot • bar graph • symbol • picture graph
	Assessment Options:	**Topic 14 Assessment –** Graphs and Data *(print or online) (pp. 845-848)* **Topic 14 Performance Assessment –** Graphs and Data *(pp. 849-850)*	

	Assessment Tasks – Topic 14	
	Procedural Check	**Application Task**
2.MD.9	Write the length of the object. Measurements are in inches.  The eraser is _____ long. (DOK 1)	Measure the length of the hands of 5 different students. Measure from the wrist to the tip of the longest finder. Record each length. Create a line plot showing each piece of data. Use the line plot to make comparisons. What is the longest length? What is the shortest length? What is the difference between the longest and the shortest length? (DOK 2)
2.MD.10	How We Come to School Each represents 1 student Ways to Come We School / Number of Students Walk Bike Car Bus Use the information from the graph. 1. How many students walk to school? 2. How many students ride the bus? 3. How many more students walk than go by car? 4. All together how many students walk and ride a bike? (DOK 2)	Daniel asked his classmates about their pets. He got the following information. 5 students had a dog. 7 students had a cat. 2 students had a turtle. 4 students had fish. Create a bar graph that shows the data that Daniel collected. Then write 3 problems that compare the data. (DOK 2)

2nd Grade

DWSBB 4: May 1 – June 6 **Flexible Pacing: 25 days**

GEOMETRY (G)
Topic 15 – Shapes and Their Attributes

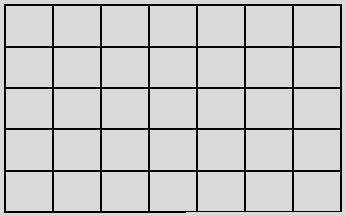
Report Card Learning Targets:
I can….
- Recognize and draw shapes having specific characteristics
- Divide circles and rectangles into equal parts

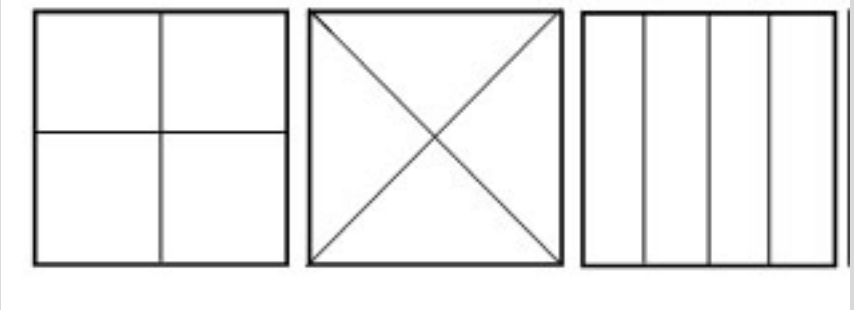
TOPIC 15

Coherence		**pp. 851C-851D**
Look back: **Grade 1-** • Attributes of 2- and 3-Dimensional Shapes • Equal Shares of Circles and Rectangles **Earlier in Grade 2-** • Total Objects in an Array	**Topic 15:** • Attributes of 2-Dimensional Shapes • Cubes • Equal Parts • Equal Groups	**Look ahead:** **Grade 3-** • Area • Fraction Concepts • Attributes of 2-Dimensional Shapes
Rigor		**p. 851E**
Conceptual Understanding: • Recognize 2-Dimensional Shapes • Cubes • Partition Rectangles • Understand Equal Shares	**Procedural Skill and Fluency:** • Use Repeated Addition	**Applications:** • Real-World Contexts

Focus	**Strand: Mathematical Practice Standard #8**	**p. 851F**
2.MP.8	**Look for and express regularity in repeated reasoning.** Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results. ***Second grade students generalize when they look for shortcuts when partitioning shapes into equal shares.*** I can notice and describe when certain calculations or steps in a procedure are repeated. I can generalize from examples or repeated observations. I can recognize and understand appropriate shortcuts. I can evaluate the reasonableness of intermediate results.	

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
2.G.1 **2.G.2** **2.G.3** **(2.G.A)**	**Strand: Geometry** Second graders will reason with shapes and their attributes. **Standard 2.G.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Sizes are compared directly or visually, not compared by measuring. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. **Standard 2.G.1** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **Standard 2.G.3** Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves, thirds, half of, a third of*, etc.; and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	**Topic 15: Shapes and Their Attributes** *(pp. 851I-851K)* **15-1** 2-Dimensional Shapes *(pp.859-864)* **15-2** Polygons and Angles *(pp. 865-870)* **15-3** Draw 2-Dimensional Shapes *(pp. 871-876)* **15-4** Cubes *(pp. 877-882)* **15-5** Divide Rectangles into Equal Squares *(pp. 883-888)* **15-6** Partition Shapes *(pp. 889-894)* **15-7** Equal Shares, Different Shapes *(pp. 895-900)* **15-8** **Math Practices ad Problem Solving: Repeated Reasoning** *(pp. 901-906)*	**Topic 15:** • vertices • quadrilaterals • pentagons • hexagons • polygon • angle • right angle • cube • face • edge • equal shares • halves • thirds • fourths
	Assessment Options:	**Topic 15 Assessment –** Shapes and Their Attributes *(print or online) (pp. 913-916)* **Topic 15 Performance Assessment –** Shapes and Their Attributes *(pp. 917-918)*	
District Wide Standards-based Benchmark #4 due by June 6			

	Assessment Tasks – Topic 15	
	Procedural Check	**Application Task**
2.G.1	Match each shape to its correct label. (DOK 1)  Hexagon  Triangle  Pentagon	Use the following shapes to create a pattern. Each shape must be used 4 times. a. triangle b. quadrilateral c. pentagon d. hexagon (DOK 2) I have more than 2 angles but less than 5 angles. 2 of my sides are the same length. What shape am I? Draw a picture to justify your answer? Could I be a different shape? Draw a picture to justify your answer? (DOK 3)
2.G.2	Count the number of same-sized squares in the rectangle.  (DOK 1)	Draw two different rectangles that are made up of 24 equal-sized squares. (DOK 2) Brady drew a rectangle that had 5 rows and 6 columns. Dora drew a rectangle that had 4 rows and 7 columns. Dora said that her rectangle had more squares. Was Dora correct? Draw words, pictures and drawing to justify your answer. (DOK 3)

2.G.3	**Color in one fourth of the rectangle.**  (DOK 1)	Sam made a card for her grandmother's birthday. She folded the paper into 3 equal sections. Show how Sam folded her paper. How many ways could this be done? (DOK 2) Mrs. Lander made 3 peanut butter sandwiches for Lyla, Carly, and Jen. She cut the sandwiches as shown below:  Lyla's Carly's Jen's Carly said that her pieces were the biggest. Was she correct? Explain your reasoning. (DOK 2)

North Carolina Department of Public Instruction
INSTRUCTIONAL SUPPORT TOOLS
FOR ACHIEVING NEW STANDARDS

2nd Grade Mathematics ● Unpacked Content

For the new Common Core State Standards that will be effective in all North Carolina schools in the 2012-13.

This document is designed to help North Carolina educators teach the Common Core (Standard Course of Study). NCDPI staff are continually updating and improving these tools to better serve teachers.

What is the purpose of this document?
To increase student achievement by ensuring educators understand specifically what the new standards mean a student must know, understand and be able to do. This document may also be used to facilitate discussion among teachers and curriculum staff and to encourage coherence in the sequence, pacing, and units of study for grade-level curricula. This document, along with on-going professional development, is one of many resources used to understand and teach the CCSS.

What is in the document?
Descriptions of what each standard means a student will know, understand and be able to do. The "unpacking" of the standards done in this document is an effort to answer a simple question "What does this standard mean that a student must know and be able to do?" and to ensure the description is helpful, specific and comprehensive for educators.

How do I send Feedback?
We intend the explanations and examples in this document to be helpful and specific. That said, we believe that as this document is used, teachers and educators will find ways in which the unpacking can be improved and made ever more useful. Please send feedback to us at feedback@dpi.state.nc.us and we will use your input to refine our unpacking of the standards. Thank You!

Just want the standards alone?
You can find the standards alone at http://corestandards.org/the-standards

Standards for Mathematical Practice in Second Grade

The Common Core State Standards for Mathematical Practice are practices expected to be integrated into every mathematics lesson for all students Grades K-12. Below are a few examples of how these Practices may be integrated into tasks that Grade 2 students complete.

1) Make Sense and Persevere in Solving Problems.	Mathematically proficient students in Second Grade examine problems and tasks, can make sense of the meaning of the task and find an entry point or a way to start the task. Second Grade students also develop a foundation for problem solving strategies and become independently proficient on using those strategies to solve new tasks. In Second Grade, students' work continues to use concrete manipulatives and pictorial representations as well as mental mathematics. Second Grade students also are expected to persevere while solving tasks; that is, if students reach a point in which they are stuck, they can reexamine the task in a different way and continue to solve the task. Lastly, mathematically proficient students complete a task by asking themselves the question, "Does my answer make sense?"
2) Reason abstractly and quantitatively.	Mathematically proficient students in Second Grade make sense of quantities and relationships while solving tasks. This involves two processes- decontexualizing and contextualizing. In Second Grade, students represent situations by decontextualizing tasks into numbers and symbols. For example, in the task, "There are 25 children in the cafeteria and they are joined by 17 more children. How many students are in the cafeteria? " Second Grade students translate that situation into an equation, such as: 25 + 17 = __ and then solve the problem. Students also contextualize situations during the problem solving process. For example, while solving the task above, students can refer to the context of the task to determine that they need to subtract 19 since 19 children leave. The processes of reasoning also other areas of mathematics such as determining the length of quantities when measuring with standard units.
3) Construct viable arguments and critique the reasoning of others.	Mathematically proficient students in Second Grade accurately use definitions and previously established solutions to construct viable arguments about mathematics. During discussions about problem solving strategies, students constructively critique the strategies and reasoning of their classmates. For example, while solving 74 - 18, students may use a variety of strategies, and after working on the task, can discuss and critique each others' reasoning and strategies, citing similarities and differences between strategies.
4) Model with mathematics.	Mathematically proficient students in Second Grade model real-life mathematical situations with a number sentence or an equation, and check to make sure that their equation accurately matches the problem context. Second Grade students use concrete manipulatives and pictorial representations to provide further explanation of the equation. Likewise, Second Grade students are able to create an appropriate problem situation from an equation. For example, students are expected to create a story problem for the equation 43 + 17 = ___ such as "There were 43 gumballs in the machine. Tom poured in 17 more gumballs. How many gumballs are now in the machine?"

5) Use appropriate tools strategically.	Mathematically proficient students in Second Grade have access to and use tools appropriately. These tools may include snap cubes, place value (base ten) blocks, hundreds number boards, number lines, rulers, and concrete geometric shapes (e.g., pattern blocks, 3-d solids). Students also have experiences with educational technologies, such as calculators and virtual manipulatives, which support conceptual understanding and higher-order thinking skills. During classroom instruction, students have access to various mathematical tools as well as paper, and determine which tools are the most appropriate to use. For example, while measuring the length of the hallway, students can explain why a yardstick is more appropriate to use than a ruler.
6) Attend to precision.	Mathematically proficient students in Second Grade are precise in their communication, calculations, and measurements. In all mathematical tasks, students in Second Grade communicate clearly, using grade-level appropriate vocabulary accurately as well as giving precise explanations and reasoning regarding their process of finding solutions. For example, while measuring an object, care is taken to line up the tool correctly in order to get an accurate measurement. During tasks involving number sense, students consider if their answer is reasonable and check their work to ensure the accuracy of solutions.
7) Look for and make use of structure.	Mathematically proficient students in Second Grade carefully look for patterns and structures in the number system and other areas of mathematics. For example, students notice number patterns within the tens place as they connect skip count by 10s off the decade to the corresponding numbers on a 100s chart. While working in the Numbers in Base Ten domain, students work with the idea that 10 ones equals a ten, and 10 tens equals 1 hundred. In addition, Second Grade students also make use of structure when they work with subtraction as missing addend problems, such as 50- 33 = __ can be written as 33+ __ = 50 and can be thought of as," How much more do I need to add to 33 to get to 50?"
8) Look for and express regularity in repeated reasoning.	Mathematically proficient students in Second Grade begin to look for regularity in problem structures when solving mathematical tasks. For example, after solving two digit addition problems by decomposing numbers (33+ 25 = 30 + 20 + 3 +5), students may begin to generalize and frequently apply that strategy independently on future tasks. Further, students begin to look for strategies to be more efficient in computations, including doubles strategies and making a ten. Lastly, while solving all tasks, Second Grade students accurately check for the reasonableness of their solutions during and after completing the task.

Grade 2 Critical Areas

The Critical Areas are designed to bring focus to the standards at each grade by describing the big ideas that educators can use to build their curriculum and to guide instruction. The Critical Areas for Second Grade can be found on page 17 in the *Common Core State Standards for Mathematics*.

1. **Extending understanding of base-ten notation**
   Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

2. **Building fluency with addition and subtraction.**
   Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

3. **Using standard units of measure.**
   Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

4. **Describing and analyzing shapes.**
   Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Operations and Algebraic Thinking 2.0A

Common Core Cluster

Represent and solve problems involving addition and subtraction.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **add, subtract**, **more, less, equal, equation, putting together, taking from, taking apart , addend**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1] [1] See Glossary, Table 1.	Second Grade students extend their work with addition and subtraction word problems in two major ways. First, they represent and solve word problems within 100, building upon their previous work to 20. In addition, they represent and solve one and two-step word problems of all three types (Result Unknown, Change Unknown, Start Unknown). Please see **Table 1** at end of document for examples of all problem types. One-step word problems use one operation. Two-step word problems use two operations which may include the same operation or opposite operations.

One Step Word Problem One Operation	**Two-Step Word Problem** Two Operations, Same	**Two-Step Word Problem** Two Operations, Opposite
There are 15 stickers on the page. Brittany put some more stickers on the page. There are now 22 stickers on the page. How many stickers did Brittany put on the page? 15 + ☐ = 22 22 – 15 = ☐	There are 9 blue marbles and 6 red marbles in the bag. Maria put in 8 more marbles. How many marbles are in the bag now? 9 + 6 + 8 = ☐	There are 9 peas on the plate. Carlos ate 5 peas. Mother put 7 more peas on the plate. How many peas are on the plate now? 9 –5 + 7 = ☐

Two-Step Problems: Because Second Graders are still developing proficiency with the most difficult subtypes (shaded in white in Table 1 at end of the glossary): *Add To/Start Unknown; Take From/Start Unknown; Compare/Bigger Unknown; and Compare/Smaller Unknown*, two-step problems do **not** involve these sub-types (Common Core Standards Writing Team, May 2011). Furthermore, most two-step problems should focus on single-digit addends since the primary focus of the standard is the problem-type.

As second grade students solve one- and two-step problems they use manipulatives such as snap cubes, place value materials (groupable and pre-grouped), ten frames, etc.; create drawings of manipulatives to show their thinking; or use number lines to solve and describe their strategies. They then relate their drawings and materials to equations. By solving a variety of addition and subtraction word problems, second grade students determine the unknown in all positions (*Result* unknown, *Change* unknown, and *Start* unknown). Rather than a letter ("*n*"), boxes or pictures are used to represent the unknown number. For example:

Problem Type: Add To		
Result Unknown:	*Change* Unknown:	*Start* Unknown:
There are 29 students on the playground. Then 18 more students showed up. *How many students are there now?*	There are 29 students on the playground. *Some more students show up*. There are now 47 students. How many students came?	*There are some students on the playground.* Then 18 more students came. There are now 47 students. How many students were on the playground at the beginning?
29 + 18 = □	29 + ☼ = 47	□ + 18 = 47

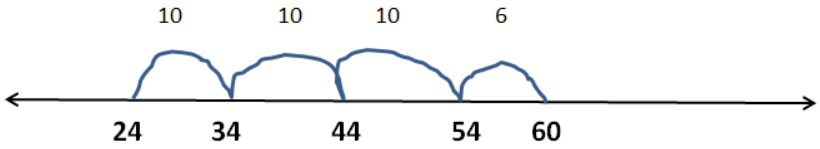
See Glossary, Table 1 for additional examples (found at end of document).

Second Graders use a range of methods, often mastering more complex strategies such as making tens and doubles and near doubles for problems involving addition and subtraction within 20. Moving beyond counting and counting-on, second grade students apply their understanding of place value to solve problems.

One-Step Example: **Some students are in the cafeteria. 24 more students came in. Now there are 60 students in the cafeteria. How many were in the cafeteria to start with?** Use drawings and equations to show your thinking.

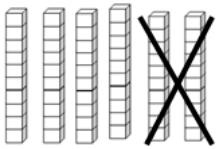
Student A: I read the equation and thought about how to write it with numbers. I thought, "What and 24 makes 60?" So, my equation for the problem is □ + 24 = 60. I used a number line to solve it.

I started with 24. Then I took jumps of 10 until I got close to 60. I landed on 54. Then, I took a jump of 6 to get to 60. So, 10 + 10 + 10 + 6 = 36. So, there were 36 students in the cafeteria to start with.

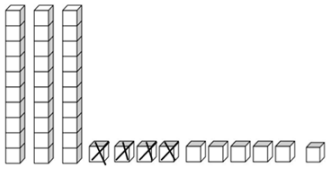


Student B: I read the equation and thought about how to write it with numbers. I thought, "There are 60 total. I know about the 24. So, what is 60 – 24?" So, my equation for the problem is 60 – 24 = □ I used place value blocks to solve it.

I started with 60 and took 2 tens away.



I needed to take 4 more away. So, I broke up a ten into ten ones. Then, I took 4 away.

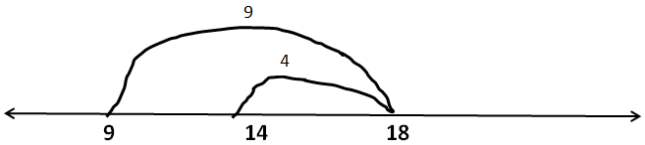


That left me with 36. So, 36 students were in the cafeteria at the beginning. 60 – 24 = 36

<u>Two-Step Example</u>: **There are 9 students in the cafeteria. 9 more students come in. After a few minutes, some students leave. There are now 14 students in the cafeteria. How many students left the cafeteria?** Use drawings and equations to show your thinking.

Student A

I read the equation and thought about how to write it with numbers: 9 + 9 - □ = 14. I used a number line to solve it. I started at 9 and took a jump of 9. I landed on 18. Then, I jumped back 4 to get to 14. So, overall, I took 4 jumps. 4 students left the cafeteria.



Student B

I read the equation and thought about how to write it with numbers: 9 + 9 - □ = 14. I used doubles to solve it. I thought about double 9s. 9 + 9 is 18. I knew that I only needed 14. So, I took 4 away, since 4 and 4 is eight. So, 4 students left the cafeteria.

Common Core Cluster

Add and subtract within 20.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **add, subtract, sum, more, less, equal, equation, putting together, taking from, taking apart, addend**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.OA.2 Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers. [2]See standard 1.OA.6 for a list of mental strategies.	Building upon their work in First Grade, Second Graders use various addition and subtraction strategies in order to fluently add and subtract within 20: **1.OA.6** <u>Mental Strategies</u> • Counting on • Making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14) • Decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9) • Using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4) • Creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12, 12 + 1 = 13 Second Graders internalize facts and develop fluency by repeatedly using strategies that make sense to them. When students are able to demonstrate fluency they are accurate, efficient, and flexible. Students must have efficient strategies in order to know sums from memory. Research indicates that teachers can best support students' memory of the sums of two one-digit numbers through varied experiences including making 10, breaking numbers apart, and working on mental strategies. These strategies replace the use of repetitive timed tests in which students try to memorize operations as if there were not any relationships among the various facts. When teachers teach facts for automaticity, rather than memorization, they encourage students to think about the relationships among the facts. (Fosnot & Dolk, 2001) It is no accident that the standard says "know from memory" rather than "memorize". The first describes an outcome, whereas the second might be seen as describing a method of achieving that outcome. So no, the standards are not dictating timed tests. (McCallum, October 2011)

Developing Fluency for Addition & Subtraction within 20

Example: **9 + 5= __**

Student A *Counting On*	**Student B** *Decomposing a Number-Leading to a Ten*
I started at 9 and then counted 5 more. I landed on 14.	I know that 9 and 1 is 10, so I broke 5 into 1 and 4. 9 plus 1 is 10. Then I have to add 4 more, which is 14.

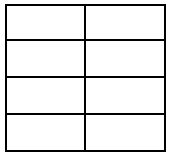
Example: **13 - 9 = __**

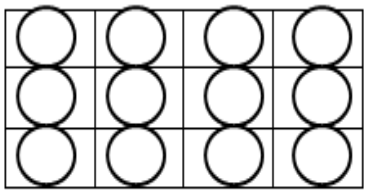
Student A *Using the Relationship between Addition and Subtraction*	**Student B** *Creating an Easier Problem*
I know that 9 plus 4 equals 13. So 13 minus 9 is 4.	Instead of 13 minus 9, I added 1 to each of the numbers to make the problem 14 minus 10. I know the answer is 4. So 13 minus 9 is also 4.

Common Core Cluster

Work with equal groups of objects to gain foundations for multiplication.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **odd, even, row, column, rectangular array, equal, addend**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	Second graders apply their work with doubles to the concept of odd and even numbers. Students should have ample experiences exploring the concept that if a number can be decomposed (broken apart) into two equal addends or doubles addition facts (e.g., 10 = 5 +5), then that number (10 in this case) is an even number. Students should explore this concept with concrete objects (e.g., counters, cubes, etc.) before moving towards pictorial representations such as circles or arrays. <u>Example</u>: **Is 8 an even number? Justify your thinking.** **Student A** I grabbed 8 counters. I paired counters up into groups of 2. Since I didn't have any counters left over, I know that 8 is an even number. **Student B** I grabbed 8 counters. I put them into 2 equal groups. There were 4 counters in each group, so 8 is an even number. **Student C** I drew 8 boxes in a rectangle that had two columns. Since every box on the left matches a box on the right, I know that 8 is even.  **Student D** I drew 8 circles. I matched one on the left with one on the right. Since they all match up I know that 8 is an even number.  **Student E** I know that 4 plus 4 equals 8. So 8 is an even number. The focus of this standard is placed on the conceptual understanding of even and odd numbers. An even number is an amount that can be made of two equal parts with no leftovers. An odd number is one that is not even or cannot be made of two equal parts. The number endings of 0, 2, 4, 6, and 8 are only an interesting and useful pattern or observation and should not be used as the definition of an even number. (Van de Walle & Lovin, 2006, p. 292)

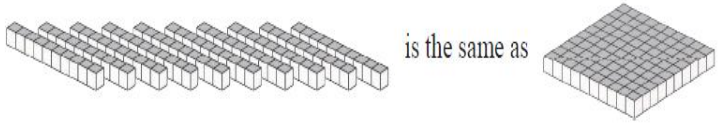
2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends	Second graders use rectangular arrays to work with repeated addition, a building block for multiplication in third grade. A rectangular array is any arrangement of things in rows and columns, such as a rectangle of square tiles. Students explore this concept with concrete objects (e.g., counters, bears, square tiles, etc.) as well as pictorial representations on grid paper or other drawings. Due to the commutative property of multiplication, students can add either the rows or the columns and still arrive at the same solution. Example: **What is the total number of circles below?**  **Student A** I see 3 counters in each column and there are 4 columns. So I added 3 + 3 + 3 + 3. That equals 12. 3 + 3 + 3 + 3 = 12 **Student B** I see 4 counters in each row and there are 3 rows. So I added 4 + 4 + 4. That equals 12. 4 + 4 + 4 = 12

Number & Operations in Base Ten 2.NBT

Common Core Standard and Cluster

Understand place value.
Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **hundreds, tens, ones, skip count, base-ten,** *number names to 1,000* **(e.g., one, two, thirty, etc.), expanded form, greater than (>), less than (<), equal to (=), digit, compare**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: (See 2.NBT.1a & b)	Second Grade students extend their base-ten understanding to hundreds as they view 10 tens as a unit called a "hundred". They use manipulative materials and pictorial representations to help make a connection between the written three-digit numbers and hundreds, tens, and ones.  As in First Grade, Second Graders' understanding about hundreds also moves through <u>several stages</u>: **Counting By Ones; Counting by Groups & Singles;** and **Counting by Hundreds, Tens and Ones**. **Counting By Ones:** At first, even though Second Graders will have grouped objects into hundreds, tens and left-overs, they rely on counting all of the individual cubes by ones to determine the final amount. It is seen as the only way to determine how many. **Counting By Groups and Singles:** While students are able to group objects into collections of hundreds, tens and ones and now tell how many groups of hundreds, tens and left-overs there are, they still rely on counting by ones to determine the final amount. They are unable to use the groups and left-overs to determine how many. <u>Example</u>: **Teacher**: How many blocks do you have? **Student**: I have 3 hundreds, 4 tens and 2 left-overs. **Teacher**: Does that help you know how many? How many do you have? **Student**: Let me see. 100, 200, 300… ten, twenty, thirty, forty. So that's 340 so far. Then 2 more. 342.

Counting by Hundreds, Tens & Ones: Students are able to group objects into hundreds, tens and ones, tell how many groups and left-overs there are, and now use that information to tell how many. Occasionally, as this stage becomes fully developed, second graders rely on counting to "really" know the amount, even though they may have just counted the total by groups and left-overs.

Example:

Teacher: How many blocks do you have?
Student: I have 3 hundreds, 4 tens and 2 left-overs.
Teacher: Does that help you know how many? How many do you have?
Student: Yes. That means that I have 342.
Teacher: Are you sure?
Student: Um. Let me count just to make sure. 100, 200, 300,…340, 341, 342. Yes. I was right. There are 342 blocks.

Understanding the value of the digits is more than telling the number of tens or hundreds. Second Grade students who truly understand the position and place value of the digits are also able to confidently model the number with some type of visual representation. Others who seem like they know, because they can state which number is in the tens place, may not truly know what each digit represents.

Example: Student Mastered
Teacher: What is this number? 726
Student: Seven hundred sixteen.
Teacher: Make this amount using your place value cards.
Student: *Uses 7 hundreds card, 2 ten cards and 6 singles*.
Teacher: *Pointing to the 6*, Can you show me where you have this?
Student: *Points to the 6 singles*.
Teacher: *Pointing to the 2*, Can you show me where you have this?
Student: *Points to the two tens*.
Teacher: *Pointing to the 7*, Can you show me where you have this?
Student: *Points to the 7 hundreds*.

Example: Student Not Yet Mastered
Teacher: What is this number? 726
Student: Seven hundred sixteen.
Teacher: Make this amount using your place value cards.
Student: *Uses 7 hundreds card, 2 ten cards and 6 singles*.
Teacher: *Pointing to the 6*, Can you show me where you have this?
Student: *Points to the 6 singles*.
Teacher: *Pointing to the 2*, Can you show me where you have this?
Student: *Points to two of the 6 singles (rather than two tens)*.

a. 100 can be thought of as a bundle of ten tens — called a "hundred."	Second Graders extend their work from first grade by applying the understanding that "100" is the same amount as 10 groups of ten as well as 100 ones. This lays the groundwork for the structure of the base-ten system in future grades. <u>Example</u>: **Teacher**: I have a pile of base-ten rods. Count out 12 please. **Student:** Student gathers 12 ten-rods. **Teacher**: How many cubes do you think you have? **Student**: Makes an estimate. **Teacher**: Count them to see. **Student**: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120. There's 120 here. **Teacher**: So, do you think you have enough to make a 100? **Student**: Yes. **Teacher**: Go ahead and trade some in to make a 100. **Student**: Student trades 10 rods for a 100 flat and leaves 2 tens remaining. **Teacher**: What do you have now? **Student**: I have 1 hundred and 2 tens. **Teacher**: Does that help you know how many you have in all? **Student**: Yes. 1 hundred and 2 tens is 120. There are 120 cubes here in all.
b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Second Grade students build on the work of **2.NBT.2a.** They explore the idea that numbers such as 100, 200, 300, etc., are groups of hundreds with zero tens and ones. Students can represent this with both groupable (cubes, links) and pre-grouped (place value blocks) materials.
2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.	Second Grade students count within 1,000. Thus, students "count on" from any number and say the next few numbers that come afterwards. <u>Example</u>: **What are the next 3 numbers after 498?** *499, 500, 501.* **When you count back from 201, what are the first 3 numbers that you say?** *200, 199, 198.* Second grade students also begin to work towards multiplication concepts as they skip count by 5s, by 10s, and by 100s. Although skip counting is not yet true multiplication because students don't keep track of the number of groups they have counted, they can explain that when they count by 2s, 5s, and 10s they are counting groups of items with that amount in each group. As teachers build on students' work with skip counting by 10s in Kindergarten, they explore and discuss with students the patterns of numbers when they skip count. For example, while using a 100s board or number line, students learn that the ones digit alternates between 5 and 0 when skip counting by 5s. When students skip count by 100s, they learn that the hundreds digit is the only digit that changes and that it increases by one number.

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Second graders read, write and represent a number of objects with a written numeral (number form or standard form). These representations can include snap cubes, place value (base 10) blocks, pictorial representations or other concrete materials. Please be cognizant that when reading and writing whole numbers, the word "and" should not be used (e.g., 235 is stated and written as "two hundred thirty-five). Expanded form (125 can be written as 100 + 20 + 5) is a valuable skill when students use place value strategies to add and subtract large numbers in 2.NBT.7.
2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	Second Grade students build on the work of **2.NBT.1** and **2.NBT.3** by examining the amount of hundreds, tens and ones in each number. When comparing numbers, students draw on the understanding that 1 hundred (the smallest three-digit number) is actually greater than any amount of tens and ones represented by a two-digit number. When students truly understand this concept, it makes sense that one would compare three-digit numbers by looking at the hundreds place first. Students should have ample experiences communicating their comparisons in words before using symbols. Students were introduced to the symbols greater than (>), less than (<) and equal to (=) in First Grade and continue to use them in Second Grade with numbers within 1,000. <u>Example</u>: **Compare these two numbers. 452 __ 455** **Student A** *Place Value* 452 has 4 hundreds 5 tens and 2 ones. 455 has 4 hundreds 5 tens and 5 ones. They have the same number of hundreds and the same number of tens, but 455 has 5 ones and 452 only has 2 ones. 452 is less than 455. 452 < 455 **Student B** *Counting* 452 is less than 455. I know this because when I count up I say 452 before I say 455. 452 < 455 452 is less than 455. While students may have the skills to order more than 2 numbers, this Standard focuses on comparing two numbers and using reasoning about place value to support the use of the various symbols.

Common Core Cluster

Use place value understanding and properties of operations to add and subtract.

Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **fluent, compose, decompose, place value, digit, ten more, ten less, one hundred more, one hundred less, add, subtract, sum, equal, addition, subtraction**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	There are various strategies that Second Grade students understand and use when adding and subtracting within 100 (such as those listed in the standard). The standard algorithm of carrying or borrowing is neither an expectation nor a focus in Second Grade. Students use multiple strategies for addition and subtraction in Grades K-3. By the end of Third Grade students use a range of algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction to fluently add and subtract within 1000. Students are expected to fluently add and subtract multi-digit whole numbers using the standard algorithm by the end of Grade 4. <u>Example</u>: **67 + 25 = __** *Place Value Strategy:* I broke both 67 and 25 into tens and ones. 6 tens plus 2 tens equals 8 tens. Then I added the ones. 7 ones plus 5 ones equals 12 ones. I then combined my tens and ones. 8 tens plus 12 ones equals 92. *Decomposing into Tens:* I decided to start with 67 and break 25 apart. I knew I needed 3 more to get to 70, so I broke off a 3 from the 25. I then added my 20 from the 22 left and got to 90. I had 2 left. 90 plus 2 is 92. So, 67 + 25 = 92 *Commutative Property:* I broke 67 and 25 into tens and ones so I had to add 60+7+20+5. I added 60 and 20 first to get 80. Then I added 7 to get 87. Then I added 5 more. My answer is 92.

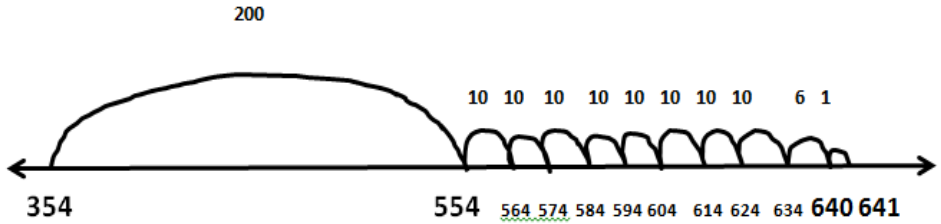
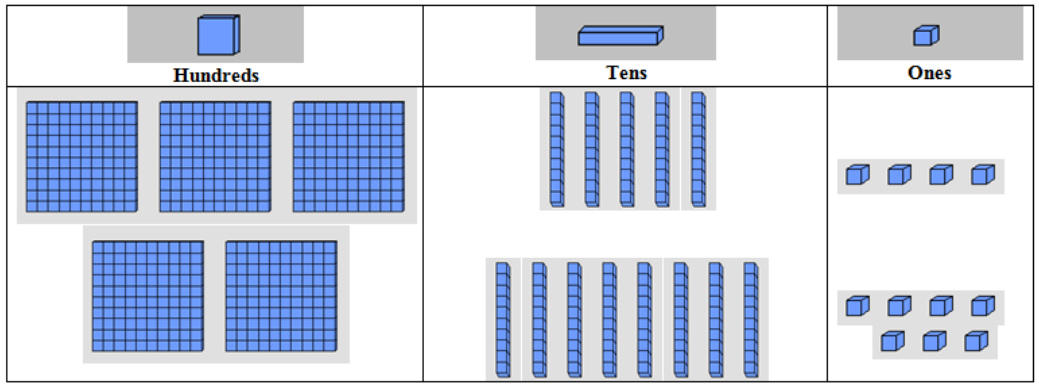
	Example: **63 – 32 = __** *Decomposing into Tens:* I broke apart both 63 and 32 into tens and ones. I know that 3 minus 2 is 1, so I have 1 left in the ones place. I know that 6 tens minus 3 tens is 3 tens, so I have a 3 in my tens place. My answer has a 1 in the ones place and 3 in the tens place, so my answer is 31. 63 – 32 = 31 *Think Addition:* I thought, '32 and what makes 63?'. I know that I needed 30, since 30 and 30 is 60. So, that got me to 62. I needed one more to get to 63. So, 30 and 1 is 31. 32 + **31** = 63
2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	Second Grade students add a string of two-digit numbers (up to four numbers) by applying place value strategies and properties of operations. Example: **43 + 34 + 57 + 24 = __** **Student A** *Associative Property* I saw the 43 and 57 and added them first. I know 3 plus 7 equals 10, so when I added them 100 was my answer. Then I added 34 and had 134. Then I added 24 and had 158. 43 + 57 + 34 + 24 = 158 **Student B** *Place Value Strategies* I broke up all of the numbers into tens and ones. First I added the tens. 40 + 30 + 50 + 20 = 140. Then I added the ones. 3 + 4 + 7 + 4 = 18. That meant I had 1 ten and 8 ones. So, 140 + 10 is 150. 150 and 8 more is 158. So, 43 + 34 + 57 + 24 = 158 **Student C** *Place Value Strategies and Associative Property* I broke up all the numbers into tens and ones. First I added up the tens. 40 + 30 + 50 + 20. I changed the order of the numbers to make adding easier. I know that 30 plus 20 equals 50 and 50 more equals 100. Then I added the 40 and got 140. Then I added up the ones. 3 + 4 + 7 + 4. I changed the order of the numbers to make adding easier. I know that 3 plus 7 equals 10 and 4 plus 4 equals 8. 10 plus 8 equals 18. I then combined my tens and my ones. 140 plus 18 (1 ten and 8 ones) equals 158.

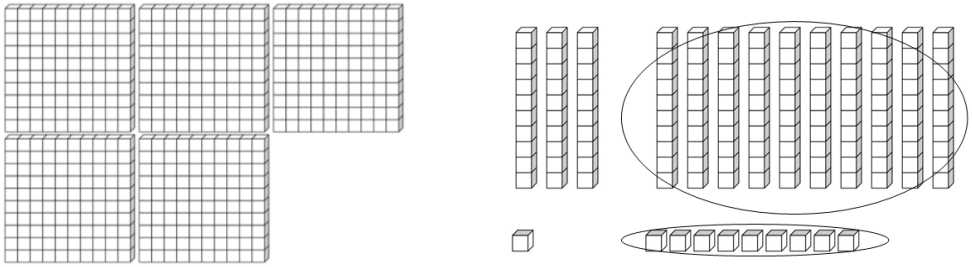
2.NBT.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

Second graders extend the work from 2.NBT. to two 3-digit numbers. Students should have ample experiences using concrete materials and pictorial representations to support their work.

This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. The standard algorithm of carrying or borrowing is not an expectation in Second Grade. Students are not expected to add and subtract whole numbers using a standard algorithm until the end of Fourth Grade.

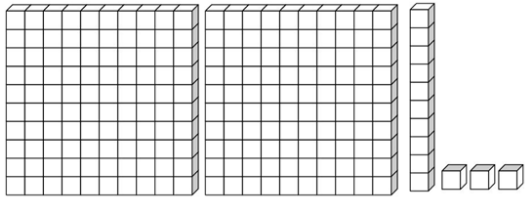
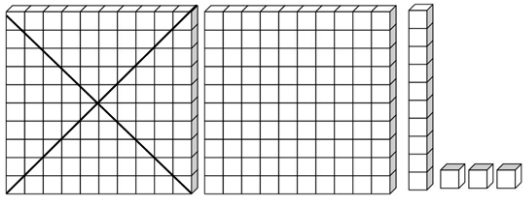
<u>Example</u>**: 354 + 287 = __**

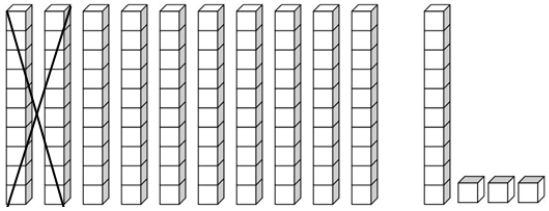
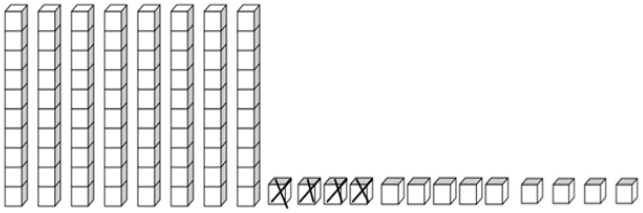
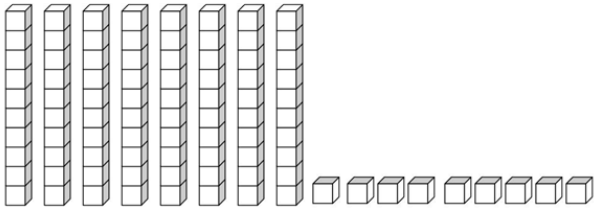
Student A	I started at 354 and jumped 200. I landed on 554. I then made 8 jumps of 10 and landed on 634. I then jumped 6 to land on 640. Then I jumped 1 more and landed on 641. 354 + 287 = 641 
Student B	I used place value blocks and a place value mat. I broke all of the numbers and placed them on the place value mat. I first added the ones.4 + 7 = 11. I then added the tens. 50 + 80 = 130. I then added the hundreds. 300 + 200 = 500. I then combined my answers. 500 + 130 = 630. 630 + 11= 641. 

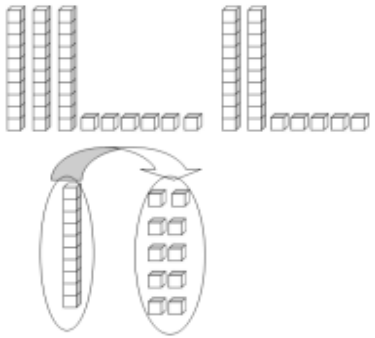
Student C	I used place value blocks. I made a pile of 354. I then added 287. That gave me 5 hundreds, 13 tens and 11 ones. I noticed that I could trade some pieces. I had 11 ones, and traded 10 ones for a ten. I then had 14 tens, so I traded 10 tens for a hundred. I ended up with 6 hundreds, 4 tens and 1 one. So, 354 + 287 = 641 

Example**: 213 - 124 = __**

Student A

I used place value blocks. I made a pile of 213.  I then started taking away blocks.
First, I took away a hundred which left me with 1 hundred and thirteen. 

	Now, I only need to take away 24. I need to take away 2 tens but I only had 1 ten so I traded in my last hundred for 10 tens. Then I took two tens away leaving me with no hundreds and 9 tens and 3 ones. 
	I then had to take 4 ones away but I only have 3 ones. I traded in a ten for 10 ones. I then took away 4 ones. 
	This left me with no hundreds, 8 tens and 9 ones. My answer is 89. **213 - 124 = 89** 
2.NBT.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	Second Grade students mentally add or subtract either 10 or 100 to any number between 100 and 900. As teachers provide ample experiences for students to work with pre-grouped objects and facilitate discussion, second graders realize that when one adds or subtracts 10 or 100 that only the tens place or the digit in the hundreds place changes by 1. As the teacher facilitates opportunities for patterns to emerge and be discussed, students notice the patterns and connect the digit change with the amount changed. Opportunities to solve problems in which students cross hundreds are also provided once students have become comfortable adding and subtracting within the same hundred.

	Example: *Within the same hundred* **What is 10 more than 218?** **What is 241 – 10?** Example**:** *Across hundreds* **293 + 10 = ☐** **What is 10 less than 206?** This standard focuses only on adding and subtracting 10 or 100. Multiples of 10 or multiples of 100 can be explored; however, the focus of this standard is to ensure that students are proficient with adding and subtracting 10 and 100 mentally.
2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.[1] [1] Explanations may be supported by drawings or objects.	Second graders explain why addition or subtraction strategies work as they apply their knowledge of place value and the properties of operations in their explanation. They may use drawings or objects to support their explanation. Once students have had an opportunity to solve a problem, the teacher provides time for students to discuss their strategies and why they did or didn't work. Example: **There are 36 birds in the park. 25 more birds arrive. How many birds are there? Solve the problem and show your work.** **Student A** I broke 36 and 25 into tens and ones 30 + 6 + 20 + 5. I can change the order of my numbers, since it doesn't change any amounts, so I added 30+ 20 and got 50. Then I added 5 and 5 to make10 and added it to the 50. So, 50 and 10 more is 60. I added the one that was left over and got on 6 to get 61. So there are 61 birds in the park. **Student B** I used place value blocks and made a pile of 36 and a pile of 25. Altogether, I had 5 tens and 11 ones. 11 ones is the same as one ten and one left over. So, I really had 6 tens and 1 one. That makes 61. 

	Example: **One of your classmates solved the problem 56 - 34 = __ by writing "I know that I need to add 2 to the number 4 to get 6. I also know that I need to add 20 to 30 to get 20 to get to 50. So, the answer is 22." Is their strategy correct? Explain why or why not?** **Student**: I see what they did. Yes. I think the strategy is correct. They thought, '34 and what makes 56?' So they thought about adding 2 to the 4 to get 6. Then, they had 36 and needed 56. So, they added 20 more. That means that they added 2 and 20 which is 22. I think that it's right. Example: **One of your classmates solved the problem 25 + 35 by adding 20 + 30 + 5 + 5. Is their strategy correct? Explain why or why not?** Student: Well, 20 + 30 is 50. And 5 + 5 is 10. So, 50 + 10 is 60. I got 60 too, but I did it a different way. I added 25 and 25 to make 50. Then I added 5 more and got 55. Then, I added 5 more and got 60. We both have 60. I think that it doesn't matter if you add the 20 first or last. You still get the same amount.

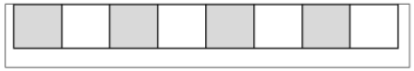
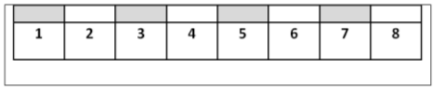
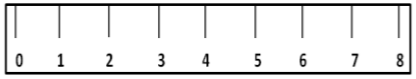
Measurement & Data 2.MD

Common Core Cluster

Measure and estimate lengths in standard units.
Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **about, a little less than, a little more than, longer, shorter, inch, foot, centimeter, meter, ruler, yardstick, meter stick, measuring tape, estimate**

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	Second Graders build upon their non-standard measurement experiences in First Grade by measuring in standard units for the first time. Using both customary (inches and feet) and metric (centimeters and meters) units, Second Graders select an attribute to be measured (e.g., length of classroom), choose an appropriate unit of measurement (e.g., yardstick), and determine the number of units (e.g., yards). As teachers provide rich tasks that ask students to perform real measurements, these foundational understandings of measurement are developed: • Understand that larger units (e.g., yard) can be subdivided into equivalent units (e.g., inches) (partition). • Understand that the same object or many objects of the same size such as paper clips can be repeatedly used to determine the length of an object (iteration). • Understand the relationship between the size of a unit and the number of units needed (compensatory principal). Thus, the smaller the unit, the more units it will take to measure the selected attribute. When Second Grade students are provided with opportunities to create and use a variety of rulers, they can connect their understanding of non-standard units from First Grade to standard units in second grade. <u>For example:</u>

By helping students progress from a "ruler" that is blocked off into colored units (no numbers)…	
…to a "ruler" that has numbers along with the colored units…	
…to a "ruler" that has inches (centimeters) with and without numbers, students develop the understanding that the numbers on a ruler do not count the individual marks but indicate the spaces (distance) between the marks. This is a critical understand students need when using such tools as rulers, yardsticks, meter sticks, and measuring tapes.	 

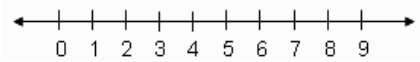
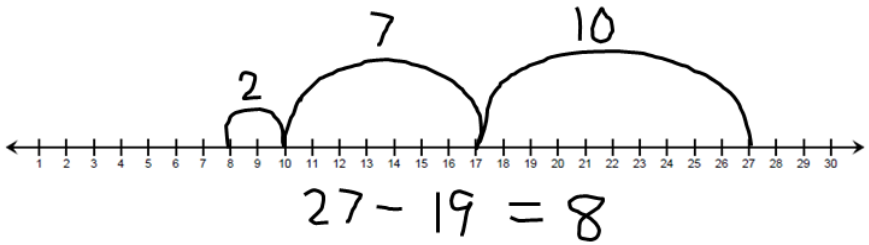
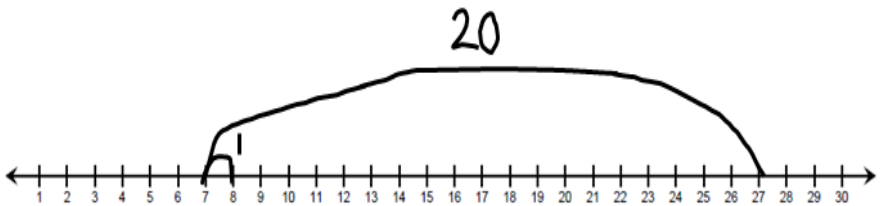
	By the end of Second Grade, students will have also learned specific measurements as it relates to feet, yards and meters: • There are 12 inches in a foot. • There are 3 feet in a yard. • There are 100 centimeters in a meter.
2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	Second Grade students measure an object using two units of different lengths. This experience helps students realize that the unit used is as important as the attribute being measured. This is a difficult concept for young children and will require numerous experiences for students to predict, measure, and discuss outcomes. <u>Example</u>: **A student measured the length of a desk in both feet and centimeters. She found that the desk was 3 feet long. She also found out that it was 36 inches long.** **Teacher**: Why do you think you have two different measurements for the same desk? **Student**: It only took 3 feet because the feet are so big. It took 36 inches because an inch is a whole lot smaller than a foot.
2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.	Second Grade students estimate the lengths of objects using inches, feet, centimeters, and meters prior to measuring. Estimation helps the students focus on the attribute being measured and the measuring process. As students estimate, the student has to consider the size of the unit- helping them to become more familiar with the unit size. In addition, estimation also creates a problem to be solved rather than a task to be completed. Once a student has made an estimate, the student then measures the object and reflects on the accuracy of the estimate made and considers this information for the next measurement. <u>Example</u>: **Teacher**: How many inches do you think this string is if you measured it with a ruler? **Student**: An inch is pretty small. I'm thinking it will be somewhere between 8 and 9 inches. **Teacher**: Measure it and see. **Student**: It is 9 inches. I thought that it would be somewhere around there.
2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	Second Grade students determine the difference in length between two objects by using the same tool and unit to measure both objects. Students choose two objects to measure, identify an appropriate tool and unit, measure both objects, and then determine the differences in lengths. <u>Example:</u> **Teacher**: Choose two pieces of string to measure. How many inches do you think each string is? **Student**: I think String A is about 8 inches long. I think string B is only about 4 inches long. It's really short. **Teacher**: Measure to see how long each string is. *Student measures*. What did you notice? **Student**: String A is definitely the longest one. It is 10 inches long. String B was only 5 inches long. I was close! **Teacher**: How many more inches does your short string need to be so that it is the same length as your long string? **Student**: Hmmm. String B is 5 inches. It would need 5 more inches to be 10 inches. 5 and 5 is 10.

Common Core Cluster

Relate addition and subtraction to length.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **inch, foot, yard, centimeter, meter, ruler, yardstick, meter stick, measuring tape, estimate, length, equation, number line, equally spaced, point**

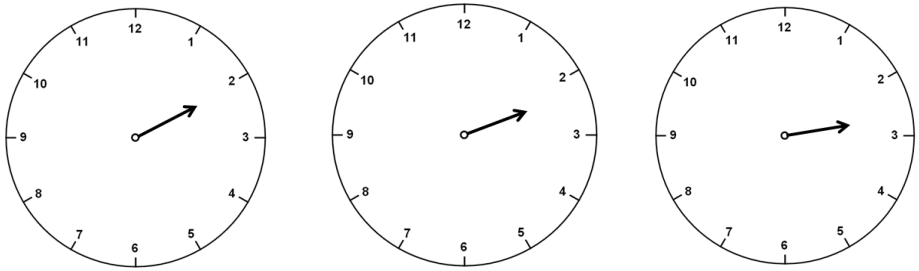
Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	Second Grade students apply the concept of length to solve addition and subtraction word problems with numbers within 100. Students should use the same unit of measurement in these problems. Equations may vary depending on students' interpretation of the task. Notice in the examples below that these equations are similar to those problem types in Table 1 at the end of this document. <u>Example</u>: **In P.E. class Kate jumped 14 inches. Mary jumped 23 inches. How much farther did Mary jump than Kate? Write an equation and then solve the problem.** **Student A** My equation is 14 + __ = 23 since I thought, "14 and what makes 23?". I used Unifix cubes. I made a train of 14. Then I made a train of 23. When I put them side by side, I saw that Kate would need 9 more cubes to be the same as Mary. So, Mary jumped 9 more inches than Kate. 14 + **9** = 23.  **Student B** My equation is 23 - 14 = __ since I thought about what the difference was between Kate and Mary. I broke up 14 into 10 and 4. I know that 23 minus 10 is 13. Then, I broke up the 4 into 3 and 1. 13 minus 3 is 10. Then, I took one more away. That left me with 9. So, Mary jumped 9 more inches than Kate. That seems to make sense since 23 is almost 10 more than 14. 23 – 14 = **9**. 23 – 10 = 13 13 – 3 = 10 10 – 1 = 9

2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	Building upon their experiences with open number lines, Second Grade students create number lines with evenly spaced points corresponding to the numbers to solve addition and subtraction problems to 100. They recognize the similarities between a number line and a ruler.  <u>Example</u>: **There were 27 students on the bus. 19 got off the bus. How many students are on the bus?** **Student A**: I used a number line. I started at 27. I broke up 19 into 10 and 9. That way, I could take a jump of 10. I landed on 17. Then I broke the 9 up into 7 and 2. I took a jump of 7. That got me to 10. Then I took a jump of 2. That's 8. So, there are 8 students now on the bus.  **Student B**: I used a number line. I saw that 19 is really close to 20. Since 20 is a lot easier to work with, I took a jump of 20. But, that was one too many. So, I took a jump of 1 to make up for the extra. I landed on 8. So, there are 8 students on the bus. 27 - 20 = 7 7 + 1 = 8 

Common Core Cluster

Work with time and money.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **clocks, hand, hour hand, minute hand, hour, minute, a.m., p.m., o'clock,** *multiples of 5* (e.g., **five, ten, fifteen,** etc.**), analog clock, digital clock, quarter 'til, quarter after, half past, quarter hour, half hour, thirty minutes before, 30 minutes after, 30 minutes until, 30 minutes past, quarter, dime, nickel, dollar, cent(s), $, ¢, heads, tails**

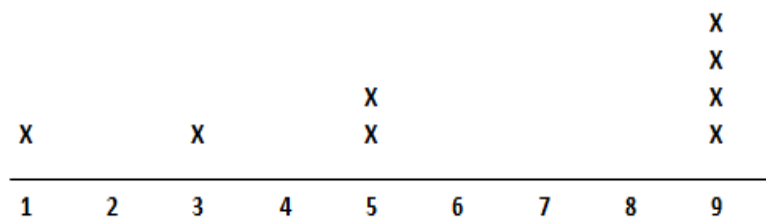
Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Second Grade students extend their work with telling time to the hour and half-hour in First Grade in order to tell (orally and in writing) the time indicated on both analog and digital clocks to the nearest five minutes. Teachers help students make connections between skip counting by 5s (2.NBT.2) and telling time to the nearest five minutes on an analog clock. Students also indicate if the time is in the morning (a.m.) or in the afternoon/evening (p.m) as they record the time. Learning to tell time is challenging for children. In order to read an analog clock, they must be able to read a dial-type instrument. Furthermore, they must realize that the hour hand indicates broad, approximate time while the minute hand indicates the minutes in between each hour. As students experience clocks with only hour hands, they begin to realize that when the time is two o'clock, two-fifteen, or two forty-five, the hour hand looks different- but is still considered "two". Discussing time as "about 2 o'clock", "a little past 2 o'clock", and "almost 3 o'clock" helps build vocabulary to use when introducing time to the nearest 5 minutes.  All of these clocks indicte the hour of "two", although they look slightly different. This is an important idea for students as they learn to tell time.

2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*	In Second Grade, students solve word problems involving either dollars or cents. Since students have not been introduced to decimals, problems focus on whole dollar amounts or cents. This is the first time money is introduced formally as a standard. Therefore, students will need numerous experiences with coin recognition and values of coins before using coins to solve problems. Once students are solid with coin recognition and values, they can then begin using the values coins to count sets of coins, compare two sets of coins, make and recognize equivalent collections of coins (same amount but different arrangements), select coins for a given amount, and make change. Solving problems with money can be a challenge for young children because it builds on prerequisite number and place value skills and concepts. Many times money is introduced before students have the necessary number sense to work with money successfully. > For these values to make sense, students must have an understanding of 5, 10, and 25. More than that, they need to be able to think of these quantities without seeing countable objects… A child whose number concepts remain tied to counts of objects [one object is one count] is not going to be able to understand the value of coins. *Van de Walle & Lovin, p. 150, 2006* Just as students learn that a number (38) can be represented different ways (3 tens and 8 ones; 2 tens and 18 ones) and still remain the same amount (38), students can apply this understanding to money. For example, 25 cents can look like a quarter, two dimes and a nickel, and it can look like 25 pennies, and still all remain 25 cents. This concept of equivalent worth takes time and requires numerous opportunities to create different sets of coins, count sets of coins, and recognize the "purchase power" of coins (a nickel can buy the same things a 5 pennies). As teachers provide students with sufficient opportunities to explore coin values (25 cents) and actual coins (2 dimes, 1 nickel), teachers will help guide students over time to learn how to mentally give each coin in a set a value, place the random set of coins in order, and use mental math, adding on to find differences, and skip counting to determine the final amount. <u>Example</u>: **How many different ways can you make 37¢ using pennies, nickels, dimes, and quarters?** <u>Example</u>: **How many different ways can you make 12 dollars using $1, $5, and $10 bills?**

Common Core Standard and Cluster

Represent and interpret data.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **collect, organize, display, show, data, attribute, sort, line plot, picture graph, bar graph, question, category, chart, table, most, least, more than, less than, about, same, different, measure, inch, foot, yard, centimeter, meter, length,**

Common Core Standards	Unpacking What do these standards mean a child will know and be able to do?
2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	Second Graders use measurement data as they move through the statistical process of posing a question, collecting data, analyzing data, creating representations, and interpreting the results. In second grade students represent the length of several objects by making a line plot. Students should round their lengths to the nearest whole unit. <u>Example</u>: **Measure 8 objects in the basket to the nearest inch. Then, display your data on a line plot.** **Teacher**: What do you notice about your data? **Student**: Most of the objects I measured were 9 inches. Only 2 objects were smaller than 4 inches. I was surprised that none of my objects measured more than 9 inches! **Teacher**: Do you think that if you chose all new objects from the basket that your data would look the same? Different? Why do you think so? 
2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[4] using information presented in a bar graph. [4] See Glossary, Table 1.	In Second Grade, students pose a question, determine up to 4 categories of possible responses, collect data, represent data on a picture graph or bar graph, and interpret the results. This is an extension from first grade when students organized, represented, and interpreted data with up to three categories. They are able to use the graph selected to note particular aspects of the data collected, including the total number of responses, which category had the most/least responses, and interesting differences/similarities between the four categories. They then solve simple one-step problems using the information from the graph.

Example:

The Second Graders were responsible for purchasing ice cream for an Open House event at school. They decided to collect data to determine which flavors to buy for the event. As a group, the students decided on the question, "What is your favorite flavor of ice cream?" and 4 likely responses, "chocolate", "vanilla", "strawberry", and "cherry".

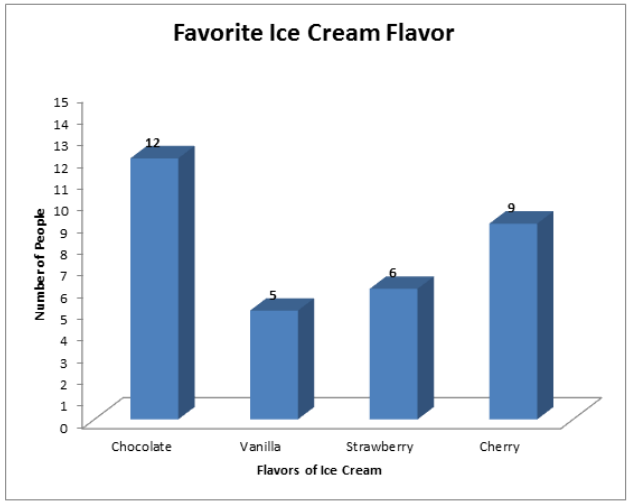
The students then divided into teams and collected data from different classes in the school. Each team decided how to keep track of the data. Most teams used tally marks to keep up with the responses. A few teams used a table and check marks.

When back in the classroom, each team organized their data by totaling each category in a chart or table. Team A's data was as follows:

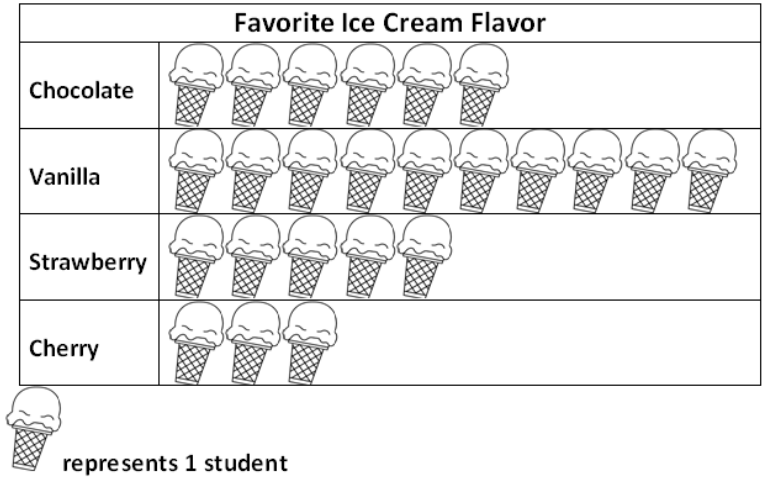
Flavor	Number of People
Chocolate	12
Vanilla	5
Strawberry	6
Cherry	9

Each team selected either a picture graph or a bar graph to display their data and created it using either paper or the computer. Team A and Team B graphs are provided here:

Team A: Bar Graph



Team B: Picture Graph



Once the data were represented on a graph, the teams then analyzed and recorded observations made from the data. Statements such as, "Chocolate had the most votes" and "Vanilla had more votes than strawberry and cherry votes combined" were recorded.

The teacher then facilitated a discussion around the combination of the data collected to determine the overall data of the school. Simple problems were posed:

- The total number of chocolate votes for Team A was 12 and the total number of chocolate votes for Team B was 6. How many chocolate votes are there altogether?
- Right now, with data from Team A, Team B, and Team C, vanilla has 45 votes and chocolate has 34 votes. How many more votes would we need from Team D so that chocolate had the same number of votes as vanilla?
- Right now, Cherry has a total of 22 votes. What if eleven people came and wanted to change their vote from Cherry to another choice. How many votes would Cherry have?

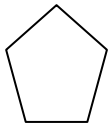
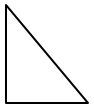
After a careful study of the data, students determined that Vanilla was the most preferred flavor. Chocolate was the second most popular. The class decided that more vanilla should be purchased than chocolate, but that both should be purchased. The teacher then asked the class, "If each gallon of ice cream served 20 children, how many gallons of ice cream would we need to buy for 460 students? How many of those total gallons should be chocolate? How many should be vanilla? Why?" The students were off solving the next task.

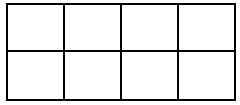
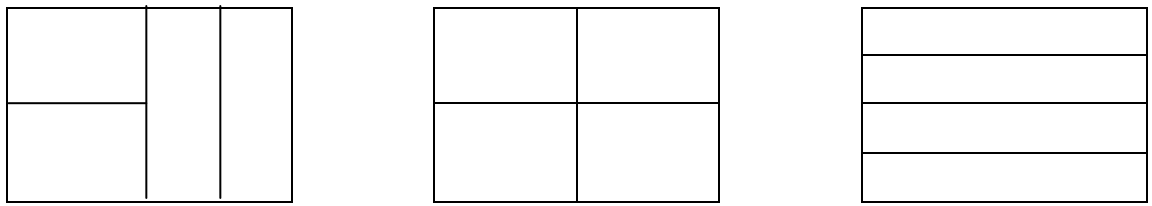
Geometry 2.G

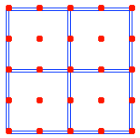
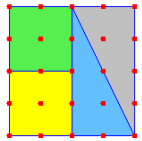
Common Core Cluster

Reason with shapes and their attributes.
Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **attribute[1], feature[1] angle, side, triangle, quadrilateral, square, rectangle, trapezoid, pentagon, hexagon, cube, face, edge, vertex, surface, figure, shape, closed, open, partition, equal size, equal shares, half, halves, thirds, half of, a third of, whole, two halves, three thirds, four fourths, partition, rows, columns**
From previous grades: **circle, sphere, half-circle, quarter-circle, cone, prism, cylinder**
[1] "**Attributes**" and "**features**" are used interchangeably to indicate any characteristic of a shape, including properties, and other defining characteristics (e.g., straight sides) and non-defining characteristics (e.g., "right-side up"). *(Progressions for the CCSSM: Geometry*, CCSS Writing Team, August 2011, page 3 footnote)

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. [5] Sizes are compared directly or visually, not compared by measuring.	Second Grade students identify (recognize and name) shapes and draw shapes based on a given set of attributes. These include triangles, quadrilaterals (squares, rectangles, and trapezoids), pentagons, hexagons and cubes. Example: **Teacher**: Draw a closed shape that has five sides. What is the name of the shape? **Student**: I drew a shape with 5 sides. It is called a pentagon.  Example: **Teacher:** I have 3 sides and 3 angles. What am I? **Student**: A triangle. See, 3 sides, 3 angles.  TEACHER NOTE: In the U.S., the term "trapezoid" may have two different meanings. Research identifies these as inclusive and exclusive definitions. The inclusive definition states: A trapezoid is a quadrilateral with *at least* one pair of parallel sides. The exclusive definition states: **A trapezoid is a quadrilateral with *exactly* one pair of parallel sides**. With this definition, a parallelogram is not a trapezoid. North Carolina has adopted the exclusive definition. (*Progressions for the CCSSM: Geometry*, The Common Core Standards Writing Team, June 2012.)

2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	Second graders partition a rectangle into squares (or square-like regions) and then determine the total number of squares. This work connects to the standard 2.OA.4 where students are arranging objects in an array of rows and columns. <u>Example</u>: **Teacher**: Partition the rectangle into 2 rows and 4 columns. How many small squares did you make? **Student**: There are 8 squares in this rectangle. See- 2, 4, 6, 8. I folded the paper to make sure that they were all the same size. 
2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	Second Grade students partition circles and rectangles into 2, 3 or 4 equal shares (regions). Students should be given ample experiences to explore this concept with paper strips and pictorial representations. Students should also work with the vocabulary terms halves, thirds, half of, third of, and fourth (or quarter) of. While students are working on this standard, teachers should help them to make the connection that a "whole" is composed of two halves, three thirds, or four fourths. This standard also addresses the idea that equal shares of identical wholes may not have the same shape. <u>Example</u>: **Teacher**: Partition each rectangle into fourths a different way. **Student A**: I partitioned this rectangle 3 different ways. I folded or cut the paper to make sure that all of the parts were the same size.  **Teacher:** In your 3 pictures, how do you know that each part is a fourth? **Student:** There are four equal parts. Therefore, each part is one-fourth of the whole piece of paper. NOTE: It is important for students to understand that fractional parts may not be symmetrical. The only criteria for equivalent fractions is that the area is equal, as illustrated in the first example above.

	<u>Example</u>: **How many different ways can you partition this 4 by 4 geoboard into fourths?** **Student A**: I partitioned the geoboard into four equal sized squares. **Teacher**: How do you know that each section is a fourth? **Student A**: Because there are four equal sized squares. That means that each piece is a fourth of the whole geoboard.  **Student B**: I partitioned the geoboard in half down the middle. The section on the left I divided into two equal sized squares. The other section I partitioned into two equal sized triangles. **Teacher**: How do you know that each section is a fourth? **Student B**: Each section is a half of a half, which is the same as a fourth. 

Glossary

Table 1 Common addition and subtraction situations[1]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ? **(K)**	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5 **(1st)**	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5 **One-Step Problem** **(2nd)**
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ? **(K)**	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3 **(1st)**	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3 **One-Step Problem** **(2nd)**

	Total Unknown	Addend Unknown	Both Addends Unknown[2]
Put Together/ Take Apart[3]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ? **(K)**	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ? **(K)**	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2 **(1st)**

	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare[4]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? **(1st)**	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? **One-Step Problem** **(1st)**	(Version with "more"): Julie has 3 more apples than Lucy. Julie has five apples. How many apples does Lucy have? 5 – 3 = ? ? + 3 = 5 **One-Step Problem** **(2nd)**
	("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ? **(1st)**	(Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ? **One-Step Problem** **(2nd)**	(Version with "fewer"): Lucy has three fewer apples than Julie. Julie has five apples. How many apples does Lucy have? **One-Step Problem** **(1st)**

K: Problem types to be mastered by the end of the Kindergarten year.
1st: Problem types to be mastered by the end of the First Grade year, including problem types from the previous year(s). However, First Grade students should have experiences with all 12 problem types.
2nd: Problem types to be mastered by the end of the Second Grade year, including problem types from the previous year(s).

1Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).

2These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.

3Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.

4For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.

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