

Woodland Park Mathematics Curriculum

Mathematics Curriculum Map

2nd Grade

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Course Philosophy and Description

In mathematics, students are engaged through multiple modalities that ensures learning a high quality curriculum and instruction which enables every student to reach their potential understanding. Student will be empowered to succeed with personalized resources that fits each student's interests and growth in the field of mathematics.

Woodland Park's philosophy in mathematics consists of providing hands on activities, differentiated instruction for conceptual mathematical understanding that supports the New Jersey State Learning Standards for grades k-8, and bridging the properties of mathematics to the make real world extensions. Students will learn to address a range of tasks focusing on the application of concepts, skills and understandings. Students will be asked to solve problems involving the key knowledge and skills for their grade level as identified by the NJSLS; express mathematical reasoning and construct a mathematical argument and apply concepts to solve model real world problems. The balanced mathematics instructional model will be used as the basis for all mathematics instruction.

NJSLS Mathematical Practices

Each grade level consists of mathematical standards that were created to balance the procedure and understanding of math topics. 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. These practices rest on important “proficiencies and processes” that are in alignment to the longstanding mathematical standards in education.

- **Mathematical Practice #1: Make sense of problems and persevere in solving them.** Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to the its solution.
- **Mathematical Practice # 2: Reason abstractly and quantitatively.** Mathematically proficient students make sense of quantities and their relationships in problem situations.
- **Mathematical Practice #3: Construct viable arguments and critique the reason for others.** Mathematically proficient students understand and use state assumptions, definitions, and previously established results in constructing arguments.
- **Mathematical Practice #4: Model with mathematics.** Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.
- **Mathematical Practice #5: Use appropriate tools strategically.** Mathematically proficient students consider the available tools when solving a mathematical problem.
- **Mathematical Practice # 6: Attend to precision.** Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others.
- **Mathematical Practice # 7: Look for and make use of structure.** Mathematically proficient students look closely to discern a pattern or structure.
- **Mathematical Practice #8: Look for and express regularity in repeated reasoning.** Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts.

Woodland Park Grade Level Overview (as per NJSL Framework)

In Kindergarten, instructional time should focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

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.

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

In Grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

In Grade 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

2ND Grade Overview:

In Grade 2, instructional time should focus on four critical areas:

(1) Extending understanding of base-ten notation:

- a. 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:

- a. 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:

- a. 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:

- a. 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.

Overview of K-8 Mathematics Curriculum Pacing Guide

Titles of Units

	September	October	November	December	January	February	March	April	May	June
Grade K	Counting and Cardinality		Counting and Cardinality/ Operations and Algebraic Thinking			Measurement & Data			Geometry	
Grade 1	Addition and Subtraction within 10				Place Value/ Addition & Subtraction through 20		Place Value, Measurement, & Shapes		Reason with Shape and their Attributes	
Grade 2	Add and Subtract within 100 and Understand Place Value to 1000			Place Value Strategies for Addition and Subtraction		Measurement			Reason with Shapes and Represent Data	
Grade 3	Multiplication, Division and Concepts of Area			Modeling Multiplication, Division and Fractions			Fractions as Numbers and Measurement		Representing Data	
Grade 4	Place Value and Operations with Whole Numbers		Multi-digit Arithmetic and Fraction Equivalence			Building Fractions and Decimal Notation			Geometry and Measurement	
Grade 5	Understanding the Place Value System		Understanding Volume and Operations on Fractions			More Operations on Fractions			Coordinate Geometry and Classifying Figures	
Grade 6	Operations and Reasoning about Ratios		Equations, The Rational Number System and 2D Geometry			Equations, The Rational Number System and 2D Geometry			Variability, Distributions, and Relationships between Quantities	
Grade 7	Operations on Rational Numbers and Expressions			Equations, Ratios and Proportions			Drawing Inferences about Populations and Probability Models		Problem Solving with Geometry	
Grade 8	Exponents, Expressions, and Equations		Functions, Equations, and Solutions			Geometry: Pythagorean Theorem, Congruence and Similarity Transformations			Statistics and Probability: Scatterplots and Association	
Algebra	Solving Equations and Inequalities		Introduction to Functions	Linear Functions/ Inequalities and Systems/Exponential Functions			Polynomials/ Quadratic Functions and Equations		Quadratic Functions and Equations	

Second Grade Curriculum Pacing Guide

Mathematics Unit Title:

Unit 1: Add and Subtract within 100 and Understand Place Value to 1000

September –November

Unit 2: Place Value Strategies for Addition and Subtraction

November – January

Unit 3: Measurement

February – April

Unit 4: Reason with Shapes and Represent Data

May - June

Content Area: Numbers, Operations, and Algebraic Thinking in Base 10	Grade Level: Second
Unit 1: Add and Subtract within 100 and Understand Place Value to 1000	Time Frame: September – November
Interdisciplinary Connections	
<p>NGSS Connection:</p> <p>Earth's Systems: Processes that Shape the Earth</p> <ul style="list-style-type: none"> 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSL math standard(s):</u> 2.NBT.A Understand place value. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSL math standard(s):</u> 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. <p>Structure and Properties of Matter</p> <ul style="list-style-type: none"> 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. 	

Interdependent Relationships in Ecosystems

- 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.
 - **Cross cutting concepts to NJSL math standard(s):** MP.2 Reason abstractly and quantitatively.
 - **Cross cutting concepts to NJSL math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSL math standard(s):** MP.5 Use appropriate tools strategically.
- 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
 - **Cross cutting concepts to NJSL math standard(s):** MP.4 Model with mathematics.
- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
 - **Cross cutting concepts to NJSL math standard(s):** MP.2 Reason abstractly and quantitatively.
 - **Cross cutting concepts to NJSL math standard(s):** MP.4 Model with mathematics.

ELA Connection:

Reading Informational Text

- RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI.2.2. Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
- RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Text Types and Purposes

- W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Comprehension and Collaboration

- SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - B. Build on others' talk in conversations by linking their explicit comments to the remarks of others.
 - C. Ask for clarification and further explanation as needed about the topics and texts under discussion.

Social Studies Connection:

- 6.1.4.A.7: Explain how the United States functions as a representative democracy, and describe the roles of elected representatives and how they interact with citizens at local, state, and national levels.
 - President's Age to become President of the United States, a person needs to be at least 35 years old. Have children use a strategy of their choice to solve the following problem. "A person who is now 33 years old wants to run for President in four years. Will that person be old enough then?"

Technology Connection:

Technology Standards 8.1.2E.1; 8.22.D.5 Interactive Whiteboard Activities. Have children use the digital whiteboard to explore the concept of related addition facts.

Physical Education Connection: Physical Education Standard 2.5.C Keeping Score: Have students read articles about the different jobs in several sports and especially that of a score keeper. Practice using different scores from the internet and practice keeping the scores by adding them and arriving at the final score.

Career Ready Practices

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

9.1 Personal Financial Literacy: By the end of grade 4, students should be able to...

STRAND B: MONEY MANAGEMENT

9.1.4.B.1 Differentiate between financial wants and needs.

STRAND D: PLANNING, SAVING, AND INVESTING

9.1.4.D.1 Determine various ways to save.

STRAND E: BECOMING A CRITICAL CONSUMER

9.1.4.E.2 Apply comparison shopping skills to purchasing decisions.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 4, students will be able to...

STRAND A: CAREER AWARENESS

- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Technology Standards (8.1 and 8.2)

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

- A. A. Technology Operations and Concepts:** *Students demonstrate a sound understanding of technology concepts, systems and operations. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.*

Select and use applications effectively and productively.

Understand and use technology systems.

8.1.2.A.1: Identify the basic features of a digital device and explain its purpose.

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

- B. Creativity and Innovation:** *Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.*

Apply existing knowledge to generate new ideas, products, or processes.

Create original works as a means of personal or group expression.

8.1.2.B.1: Illustrate and communicate original ideas and stories using multiple digital tools and [resources](#).

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

- C. Design:** *The design process is a systematic approach to solving problems.*

The attributes of design.

8.2.2.C.1: Brainstorm ideas on how to solve a problem or build a product.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

- D. Abilities for a Technological World:** *The designed world is the product of a design process that provides the means to convert resources into products and systems.*

Apply the design process.

8.2.2.D.1: Collaborate and apply a design process to solve a simple problem from everyday experiences.

Unit 1. Title: Add and Subtract within 100 and Understand Place Value to 1000

Standards:

2.OA.A. Represent and solve problems involving addition and subtraction.

- 2.OA.A.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. ***(benchmarked)**
- 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.*
***(benchmarked)**

2.NBT.A. Represent and solve problems involving addition and subtraction.

- 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:
 - 2.NBT.A.1.a. 100 can be thought of as a bundle of ten tens — called a “hundred.”
 - 2.NBT.A.1.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.NBT. A.2. Count within 1000; skip-count by 5s, 10s, and 100s. ***(benchmarked)**
- 2.NBT. A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 2.NBT. A.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.

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

- 2.NBT. B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

Essential Questions:

- What is the difference between adding and subtracting numbers within 20 in either one or two step problems?
- Can you find a way to make 124 (use another number as well) using only tens and ones?
- How can one find the total of parts?

Enduring Understanding:

Learning Goal 1: Add and subtract within 20 to solve 1- and 2-step word problems with unknowns in any position.

<ul style="list-style-type: none"> • How can one find the missing part of a whole? • How can a problem be simplified? • What strategies are available to determine how much or how many we have? • Why would one need to pair things? 	<p><u>Learning Goal 2:</u> Fluently add and subtract <u>within 10</u> using mental strategies.</p> <p><u>Learning Goal 3:</u> Represent a 3-digit number as specific amounts of <i>hundreds</i>, <i>tens</i>, and <i>ones</i>.</p> <p><u>Learning Goal 4:</u> Identify ten <i>tens</i> as 100 and represent two hundred, three hundred, ... nine hundred with 2, 3, ..., 9 hundred bundles (with zero <i>tens</i> and zero <i>ones</i>).</p> <p><u>Learning Goal 5:</u> Skip count by 5s and 10s up to 100...beginning at any multiple of 5.</p> <p><u>Learning Goal 6:</u> Read numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p><u>Learning Goal 7:</u> Write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p><u>Learning Goal 8:</u> Use symbols $>$, $=$, $<$ to record the results of comparing two 3-digit numbers by decomposing the number into a number (100s, 10s, and 1s).</p> <p><u>Learning Goal 9:</u> Mentally add or subtract 10 or 100 from any given number between 100 and 900.</p>
<p>Knowledge and Skills:</p> <p><u>Concept 1:</u> 100 can be thought of as a bundle of ten tens — called a <i>hundred</i>.</p> <p><u>Concept 2:</u> 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 <i>tens</i> and 0 <i>ones</i>).</p> <p><u>Concept 3:</u> Expanded Form.</p> <p><u>Concept 4:</u> Compare Place Value.</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p><u>Objective 1:</u> count on and put together to add to solve one- and two-step word problems.</p> <p><u>Objective 2:</u> take from or take apart to subtract to solve one- and two-step word problems.</p> <p><u>Objective 3:</u> use drawings and equations to represent the problem.</p> <p><u>Objective 4:</u> add and subtract within <u>10</u> using mental strategies with accuracy and efficiency.</p> <p><u>Objective 5:</u> represent 100 as a bundle of ten <i>tens</i>.</p>

<p>Concept 5: Mentally Add or Subtract to find Place Value.</p>	<p>Objective 6: represent the number of <i>hundreds, tens, and ones</i> in a 3-digit number.</p> <p>Objective 7: count by fives, tens, and hundreds within 1000.</p> <p>Objective 8: read numbers to 1000 written using base-ten numerals.</p> <p>Objective 9: read number names to 1000 and read numbers to 1000 written in expanded form.</p> <p>Objective 10: write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p>Objective 11: use the number of the hundreds, tens and/or ones digits to compare two three-digit numbers.</p> <p>Objective 12: write the results of the comparison using $>$, $=$, or $<$.</p> <p>Objective 13: Mentally add and subtract 10 or 100 from any given number between 100 and 900.</p>
<p>Core Instructional and Supplemental Materials:</p> <p>Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math grades k-5</i>. McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops 	<div> <p>Technology Integration:</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) • www.buzzmath.com • www.math-drills.com • www.splashmath.com </div> <div> <p>Illustrative Mathematics:</p> <p>2.OA.A.1 Pencil and a Sticker</p> <p>2.OA.B.2 Building toward fluency</p> <p>2.NBT.A.1 Making 124</p> <p>2.NBT.A.1 Largest Number Game</p> <p>2.NBT.A.3 Looking at Numbers Every Which Way</p> <p>2.NBT.A.4 Ordering 3-digit numbers</p> <p>2.NBT.B.8 Choral Counting</p> </div>

<ul style="list-style-type: none">• Math centers/stations• Video tutorials for anticipatory set/guided visuals• Anchor charts created by teachers• Reference sheets created by teachers• Vocabulary Activities/Math Word Wall• Problem of the day(s)/Weeks	<ul style="list-style-type: none">• https://www.education.com• https://www.khanacademy.org/• https://www.desmos.com/• www.xtramath.com• www.khanacademy.com	
Suggested Activities: Find numbers around the room to add and subtract them Mad Minute timed fact tests	Songs Children’s literature Roll-dice and write numbers	addition & subtraction flashcards Matching numbers, trace numbers, read numbers Interactive Notebook
Formative/Summative/Benchmark Assessments: Diagnostic Assessment (as Pre-Assessment): Assesses a student’s strengths, weaknesses, knowledge, and skills prior to instruction. <ul style="list-style-type: none">• STAR 360, iXL, Pre-assessments per grade level• Summer packet review• Daily Problem of the Day• Diagnostic Pre-Chapter Assessment “Am I Ready” for each chapter Formative Assessments: Assesses a student’s performance during instruction, and usually occurs regularly throughout the instruction process. <ul style="list-style-type: none">• Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week Summative Assessments: Measures a student’s achievement at the end of instruction. <ul style="list-style-type: none">• Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level)• Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A)• STAR 360 benchmark assessments Criterion-Referenced Assessment: Measures a student’s performance against a goal, specific objective, or standard. Norm-Referenced Assessment: Compares a student’s performance against other students (a national group or other “norm”) <ul style="list-style-type: none">• Alternate Assessments Interim/Benchmark Assessment <ul style="list-style-type: none">• Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.		

Unit 1: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving</p> <p>Connect Previous Knowledge to New Learning</p> <p>Making Thinking Visible</p> <p>Develop and Demonstrate Mathematical Practices</p> <p>Inquiry-Oriented and Exploratory Approach</p> <p>Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations</p> <p>Explain the Rationale of your Math Work</p> <p>Quick Writes</p> <p>Pair/Trio Sharing</p> <p>Turn and Talk Charting Gallery</p> <p>Walks</p> <p>Small Group and Whole Class Discussions</p> <p>Student Modeling</p>	<p>Analyze Student Work</p> <p>Identify Student's Mathematical Understanding</p> <p>Identify Student's Mathematical Misunderstandings</p> <p>Interviews</p> <p>Role Playing</p> <p>Diagrams, Charts, Tables, and Graphs</p> <p>Anticipate Likely and Possible Student Responses</p> <p>Collect Different Student Approaches</p>	<p>Multiple Response Strategies</p> <p>Asking Assessing and Advancing Questions</p> <p>Revoicing</p> <p>Marking</p> <p>Recapping</p> <p>Challenging Pressing for Accuracy and Reasoning</p> <p>Maintain the Cognitive Demand</p>
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Content Area: Numbers, Operations, and Algebraic Thinking with Base 10	Grade Level : Second
Unit 2: Place Value Strategies for Addition and Subtraction	Time Frame: November - January
Interdisciplinary Connections	
<p>NGSS Connection: Earth's Systems: Processes that Shape the Earth.</p> <ul style="list-style-type: none"> 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. <ul style="list-style-type: none"> <u>Cross cutting concepts to NJSLS math standard(s):</u> 2.NBT.A Understand place value. <u>Cross cutting concepts to NJSLS math standard(s):</u> MP.4 Model with mathematics. <p>Social Studies Connection:</p> <ul style="list-style-type: none"> Standard 6.1.4.C.15: Describe how the development of different transportation systems impacted the economies of New Jersey and the United States. <ul style="list-style-type: none"> Research the history of the first automobile being built. Think about how it changed our lives and how travel became easier and faster. Note: The first automobile built in large numbers was the Oldsmobile. In 1901 the Olds Company built 425 cars, in 1902 it built 3,750 cars. How many cars did the company build in those two years? Which number is even, which is odd? Select a number and skip count backwards from 2014 to 1901. Skip count backwards from the current year 2014 back to 1901 and 1902. Extend: When was the first bicycle invented? About how long ago was it invented? <p>ELA Connection: Reading Informational Text.</p> <ul style="list-style-type: none"> RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. RI.2.2. Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text. RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. <p>Text Types and Purposes</p> <ul style="list-style-type: none"> W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content. W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation. W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism. 	

Comprehension and Collaboration

- SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - B. Build on others' talk in conversations by linking their explicit comments to the remarks of others.
 - C. Ask for clarification and further explanation as needed about the topics and texts under discussion.

Career Ready Practices

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP4. Communicate clearly and effectively and with reason.

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

9.1 Personal Financial Literacy: By the end of grade 4, students should be able to...

STRAND A: INCOME AND CAREERS

9.1.4.A.2 Identify potential sources of income.

STRAND E: BECOMING A CRITICAL CONSUMER

9.1.4.E.1 Determine factors that influence consumer decisions related to money.

9.1.4.E.2 Apply comparison shopping skills to purchasing decisions.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 4, students will be able to...

STRAND A: CAREER AWARENESS

- 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Technology Standards (8.1 and 8.2)

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

C. Design: *The design process is a systematic approach to solving problems.*

The attributes of design.

8.2.2.C.1: Brainstorm ideas on how to solve a problem or build a product.

The application of engineering design.

8.2.2.C.4: Identify designed products and brainstorm how to improve one used in the classroom.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

D. Abilities for a Technological World: *The designed world is the product of a design process that provides the means to convert resources into products and systems.*

Apply the design process.

8.2.2.D.1: Collaborate and apply a design process to solve a simple problem from everyday experiences.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

E. Computational Thinking: Programming: *Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.*

Computational thinking and computer programming as tools used in design and engineering.

8.2.2.E.1: List and demonstrate the steps to an everyday task.

Unit 2: Place Value Strategies for Addition and Subtraction

Standards:

2.OA.A. Represent and solve problems involving addition and subtraction.

- 2.OA.A.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. **(benchmarked)*
- 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.*
**(benchmarked)*

2.NBT.A. Understand place value.

- 2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s. **(benchmarked)*

2.NBT.B. 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. **(benchmarked)*
- 2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
- 2.NBT.B.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.
- 2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.

2.OA.C. 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.
- 2.OA.C.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.

2.G.A. Reason with shapes and their attributes.

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

Essential Questions:

- How can we show a number in other ways?
- How can I use objects to add?
- How can I use objects to subtract?
- How can one find the total of parts?
- How can one find the missing part of a whole?
- How can a problem be simplified?
- What strategies are available to determine how much or how many we have?
- Why would one need to pair things?

Enduring Understanding:

Learning Goal 1: Add and subtract within 100 to solve 1- and 2-step word problems with unknowns in any position.

Learning Goal 2: Fluently add and subtract within 10 using mental strategies.

Learning Goal 3: Write an equation to express an even number as a sum of two equal addends.

Learning Goal 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.

Learning Goal 5: Partition a rectangle into rows and columns of same-size squares and count to find the total number.

Learning Goal 6: Use a variety of strategies (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 50.

Learning Goal 7: Add up to four two -digit numbers using strategies based on place value and properties of operations.

Learning Goal 8: 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.

Learning Goal 9: After applying addition and subtraction strategies based on place value and the properties of operations, explain why these strategies work using drawings or objects [for example, $37 + 12$ equals $30 + 7 + 10 + 2$ (place value) which equals $30 + 10 + 7 + 2$ (property of operations)].

	<p>Learning Goal 10: Count within 1000 by ones, fives, tens, and hundreds beginning at any multiple of 1, 5, 10, or 100 (e.g. begin at 505 and skip count by 5 up to 605, or begin at 600 and skip count by 100 up to 1000).</p>
<p>Knowledge and Skills:</p> <p>Concept 1: In adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones.</p> <p>Concept 2: Sometimes it is necessary to compose or decompose tens or hundreds.</p> <p>Concept 3: Even: groups having even numbers of objects will pair up evenly.</p> <p>Concept 4: Odd: groups having odd numbers of objects will not pair up evenly.</p> <p>Concept 5: Arrays as arrangements of objects.</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p>Objective 1: count on and put together to add to solve one- and two-step word problems.</p> <p>Objective 2: take from or take apart to subtract to solve one- and two-step word problems.</p> <p>Objective 3: use drawings and equations to represent the problem.</p> <p>Objective 4: add <u>within 10</u> using mental strategies with accuracy and efficiency.</p> <p>Objective 5: subtract <u>within 10</u> using mental strategies with accuracy and efficiency.</p> <p>Objective 6: pair up to 20 object, count by 2s and determine whether the group contains an even or odd number of objects.</p> <p>Objective 7: write an equation to express an even number as a sum of two equal addends.</p> <p>Objective 8: with objects arranged in an array, use repeated addition to find the total.</p> <p>Objective 9: with objects arranged in an array, write an equation to express repeated addition.</p> <p>Objective 10: partition a rectangle into rows and columns of same-size squares and count to find the total number.</p> <p>Objective 11: with accuracy and efficiency, add and subtract <u>within 50</u> using strategies based on place value.</p> <p>Objective 12: with accuracy and efficiency, add and subtract <u>within 50</u> using strategies based on properties of operations.</p> <p>Objective 13: with accuracy and efficiency, add and subtract <u>within 50</u> using strategies based on the relationship between addition and subtraction.</p>

	<p>Objective 14: add three two digit numbers using place value strategies and properties of operations.</p> <p>Objective 15: add four two digit numbers using place value strategies and properties of operations.</p> <p>Objective 16: add and subtract within 1000, using concrete models or drawings.</p> <p>Objective 17: add and subtract within 1000 using strategies based on place value.</p> <p>Objective 18: add and subtract within 1000 using properties of operations or the relationship between addition and subtraction.</p> <p>Objective 19: relate the strategies to a written method.</p> <p>Objective 20: Explain, using objects and drawings, why addition and subtraction strategies based on place value work.</p> <p>Objective 21: Explain, using objects and drawings, why addition and subtraction strategies based on properties of operations work.</p> <p>Objective 22: count within 1000 by ones.</p> <p>Objective 23: count within 1000 by fives, tens, and hundreds beginning at any multiple of 5, 10, or 100.</p>		
<p>Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D. <i>McGraw-Hill Education: My Math grades k-5</i>. McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” 	<table border="1"> <tr> <td data-bbox="760 1015 1400 1406"> <p>Technology Integration:</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) </td><td data-bbox="1400 1015 2072 1406"> <p>Illustrative Mathematics:</p> <p>2.OA.B.2 Hitting the Target Number</p> <p>2.OA.C.3 Red and Blue Tiles</p> <p>2.OA.C.4 Counting Dots in Arrays</p> <p>2.G.A.2 Partitioning a Rectangle into Unit Squares</p> <p>2.NBT.B.6 Toll Bridge Puzzle</p> <p>2.NBT.B.7 How Many Days Until Summer Vacation?</p> <p>2.NBT.B.9 Peyton and Presley Discuss Addition</p> </td></tr> </table>	<p>Technology Integration:</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illuminations.nctm.org • www.k5mathteachingresources.com • www.k-5learning.com • www.smartexchange.com(interactive smartboard tools) 	<p>Illustrative Mathematics:</p> <p>2.OA.B.2 Hitting the Target Number</p> <p>2.OA.C.3 Red and Blue Tiles</p> <p>2.OA.C.4 Counting Dots in Arrays</p> <p>2.G.A.2 Partitioning a Rectangle into Unit Squares</p> <p>2.NBT.B.6 Toll Bridge Puzzle</p> <p>2.NBT.B.7 How Many Days Until Summer Vacation?</p> <p>2.NBT.B.9 Peyton and Presley Discuss Addition</p>
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<ul style="list-style-type: none"> • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<ul style="list-style-type: none"> • www.buzzmath.com • www.math-drills.com • www.splashmath.com • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.xtramath.com • www.khanacademy.com 	
Suggested Activities: Manipulatives: connecting cubes, place value blocks (units, longs, flats, cubes), coins	Number lines, regrouping mats, 100s charts	Think pair share counting activity Red Robin counting activity
<p>Formative/Summative/Benchmark Assessments:</p> <p>Diagnostic Assessment (as Pre-Assessment): Assesses a student’s strengths, weaknesses, knowledge, and skills prior to instruction.</p> <ul style="list-style-type: none"> • STAR 360, iXL, Pre-assessments per grade level • Summer packet review • Daily Problem of the Day • Diagnostic Pre-Chapter Assessment “Am I Ready” for each chapter <p>Formative Assessments: Assesses a student’s performance during instruction, and usually occurs regularly throughout the instruction process.</p> <ul style="list-style-type: none"> • Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week <p>Summative Assessments: Measures a student’s achievement at the end of instruction.</p> <ul style="list-style-type: none"> • Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level) • Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A) <p>Criterion-Referenced Assessment: Measures a student’s performance against a goal, specific objective, or standard.</p> <p>Norm-Referenced Assessment: Compares a student’s performance against other students (a national group or other “norm”)</p> <ul style="list-style-type: none"> • Alternate Assessments <p>Interim/Benchmark Assessment</p> <p>Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.</p>		

Unit 2: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
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	<ul style="list-style-type: none"> ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving</p> <p>Connect Previous Knowledge to New Learning</p> <p>Making Thinking Visible</p> <p>Develop and Demonstrate Mathematical Practices</p> <p>Inquiry-Oriented and Exploratory Approach</p> <p>Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations</p> <p>Explain the Rationale of your Math Work</p> <p>Quick Writes</p> <p>Pair/Trio Sharing</p> <p>Turn and Talk Charting Gallery</p> <p>Walks</p> <p>Small Group and Whole Class Discussions</p> <p>Student Modeling</p>	<p>Analyze Student Work</p> <p>Identify Student's Mathematical Understanding</p> <p>Identify Student's Mathematical Misunderstandings</p> <p>Interviews</p> <p>Role Playing</p> <p>Diagrams, Charts, Tables, and Graphs</p> <p>Anticipate Likely and Possible Student Responses</p> <p>Collect Different Student Approaches</p>	<p>Multiple Response Strategies</p> <p>Asking Assessing and Advancing Questions</p> <p>Revoicing</p> <p>Marking</p> <p>Recapping</p> <p>Challenging Pressing for Accuracy and Reasoning</p> <p>Maintain the Cognitive Demand</p>
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Content Area: Measurement and Data**Grade Level : Second****Unit 3: Measurement****Time Frame: February - April****Interdisciplinary Connections****NGSS Connection:**

Earth's Systems: Processes that Shape the Earth.

- 2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
 - **Cross cutting concepts to NJSLS math standard(s):** 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.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.5 Use appropriate tools strategically.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.2 Reason abstractly and quantitatively.

Earth's Systems: Processes that Shape the Earth.

- 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
 - **Cross cutting concepts to NJSLS math standard(s):** 2.NBT.A Understand place value.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.

ELA Connection:

Reading Informational Text

- RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI.2.2. Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
- RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Text Types and Purposes

- W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.
- W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Comprehension and Collaboration

- SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - B. Build on others' talk in conversations by linking their explicit comments to the remarks of others.
 - C. Ask for clarification and further explanation as needed about the topics and texts under discussion.

Social Studies Connection:

- Standard 6.1.4.B.1: Compare and contrast information that can be found on different types of maps and determine how the information may be useful.
 - Explain that maps show distances or how far it is from one place to another. Ask children to help you draw a map of a town or city on the board. Call on volunteers to name several places that might be in the town. (They might name supermarket, library, school, park and so on.) Record each place on the board. Then, draw straight lines connecting each of the places to the others. Suggest reasonable distances between the places and record these along the lines.

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

9.1 Personal Financial Literacy: By the end of grade 4, students should be able to...

STRAND A: INCOME AND CAREERS

9.1.4.A.3 Explain how income affects spending and take-home pay.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 4, students will be able to...

STRAND A: CAREER AWARENESS

- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Technology Standards (8.1 and 8.2)

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

C. Design: *The design process is a systematic approach to solving problems.*

The attributes of design.

8.2.2.C.1: Brainstorm ideas on how to solve a problem or build a product.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

D. Abilities for a Technological World: *The designed world is the product of a design process that provides the means to convert resources into products and systems.*

Assess the impact of products and systems.

8.2.2.D.5: Identify how using a tool (such as a bucket or wagon) aids in reducing work.

Unit 3: Measurement

Standards:

2.MD.A. Measure and estimate lengths in standard units.

- 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.MD.A.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.
- 2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters.
- 2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2.MD.B. 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. *For example, if Angela needs 30 feet of ribbon for gifts, but she only has 17 feet, number sentences $17 + \square = 30$ and $30 - \square = 17$ both represent the situation and \square represents the number of feet of ribbon that she still needs.*
- 2.MD.B.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.

2.NBT.A. Understand place value.

- 2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.B. 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. **(benchmarked)*

2.MD.C. 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.

<p>Essential Questions:</p> <ul style="list-style-type: none"> • How do I describe and compare objects by length, height, and weight? • Why do we sort objects? • Why do we measure objects? • How do we measure objects? • Why do we need standard units of measurement? • How are the locations of numbers on a number line related to length? • How can addition and subtraction be used to find lengths? • How do the positions of the hands on an analog clock indicate the time? • How do the numbers on a digital clock indicate the time? • How do we determine how much money is needed and how much money one has? 	<p>Enduring Understanding:</p> <p><u>Learning Goal 1:</u> Estimate lengths of objects and measure lengths of objects using appropriate tools.</p> <p><u>Learning Goal 2:</u> Compare measurements of an object taken with two different units of measure and describe how the two measurements relate to the size of the unit chosen.</p> <p><u>Learning Goal 3:</u> Compare lengths of two objects and determine how much longer one object is than the other using a standard unit of measure.</p> <p><u>Learning Goal 4:</u> Add and subtract within 100 to solve word problems involving lengths using a symbol to represent the unknown number.</p> <p><u>Learning Goal 5:</u> Use a number line to represent the solution of whole number sums and differences related to length within 100.</p> <p><u>Learning Goal 6:</u> Tell and write time using analog and digital clocks to the nearest five minutes using a.m. and p.m.</p> <p><u>Learning Goal 7:</u> Orally count within 1000 including skip-counting by 5s, 10s, and 100s</p> <p><u>Learning Goal 8:</u> Select and use a strategy (place value, properties of operation, and/or the relationship between addition and subtraction) to add and subtract within 100.</p>
<p>Knowledge and Skills:</p> <p><u>Concept 1:</u> Place value</p> <p><u>Concept 2:</u> Relationship between addition and subtraction</p> <p><u>Concept 3:</u> Properties of Operations</p>	<p>Demonstration of Learning: <i>Students are able to: (TLWBAT/SWBAT):</i></p> <p><u>Objective 1:</u> measure lengths of objects using rules, yardsticks, meter sticks and measuring tapes.</p> <p><u>Objective 2:</u> measure the length of an object using different units of measure.</p> <p><u>Objective 3:</u> compare the measurements and explain how they relate to each unit.</p> <p><u>Objective 4:</u> estimate lengths of objects.</p>

Objective 5: Measure objects, comparing to determine how much longer one object is than another.

Objective 6: Express the difference in length in terms of a standard unit of measure.

Objective 7: add and subtract, within 100, to solve word problems involving lengths (lengths are given in the same units).

Objective 8: use drawings to represent the problem.

Objective 9: use number sentences with a symbol for the unknown to represent the problem.

Objective 10: use equally spaced points of a number line to represent whole numbers as lengths from 0.

Objective 11: represent whole number sums within 100 on a number line diagram.

Objective 12: represent whole number differences within 100 on a number line diagram.

Objective 13: use analog and digital clocks, tell time to the nearest five minutes using a.m. and p.m.

Objective 14: use analog and digital clocks, write time to the nearest five minutes using a.m. and p.m.

Objective 15: count within 1000 by ones.

Objective 16: count within 1000 by fives, tens, and hundreds beginning at any multiple of 5, 10, or 100.

<p>Core Instructional and Supplemental Materials:</p> <p>Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math grades k-5</i>. McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com</p> <ul style="list-style-type: none"> • “Model the Math” activities in Teacher Edition for each lesson • “Literature Connection” found in Teacher Edition for each lesson • “Real-World Problem Solving Reader” • RTI Differentiated Instruction / ELL Support for each chapter • Laptops • Math centers/stations • Video tutorials for anticipatory set/guided visuals • Anchor charts created by teachers • Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks 	<p>Technology Integration:</p> <ul style="list-style-type: none"> • www.ixl.com • www.softschools.com • www.mathisfun.com • www.jmathpage.com • www.illustrations.nctm.org • www.k-5mathteachingresources.com • https://gradeKcommoncoremath.wikispaces.hcpss.org/kindergarten+home • www.connectED.mcgraw-hill.com 	<p>Illustrative Mathematics:</p> <ul style="list-style-type: none"> • 2.MD.A.1,3,4 Determining Length • 2.MD.B.5 High Jump Competition • 2.MD.B.6 Frog and Toad on the Number Line • 2.MD.C.7 Ordering Time
<p>Suggested Activities:</p> <p>Manipulatives-build numbers</p> <p>Manipulatives: inch and centimeter rulers, large and small paper clips, connecting cubes, meter/yardsticks, color tiles, coins, clocks</p>	<p>“How Big is a Foot”</p> <p>https://www.youtube.com/watch?v=Xky3yEXyNHc</p> <p>http://www.mwpenn.com/lesson-plans/other-mathbooks/how-big-is-a-foot/</p>	<p>Roll dice- write numbers</p> <p>Matching numbers, trace numbers, read numbers</p> <p>Dot paper, number lines, graph paper</p>

Formative/Summative/Benchmark Assessments:

Diagnostic Assessment (as Pre-Assessment): Assesses a student's strengths, weaknesses, knowledge, and skills prior to instruction.

- STAR 360, iXL, Pre-assessments per grade level
- Summer packet review
- Daily Problem of the Day
- Diagnostic Pre-Chapter Assessment "Am I Ready" for each chapter

Formative Assessments: Assesses a student's performance during instruction, and usually occurs regularly throughout the instruction process.

- Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week

Summative Assessments: Measures a student's achievement at the end of instruction.

- Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level)
- Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A)
- STAR 360 benchmark assessments

Criterion-Referenced Assessment: Measures a student's performance against a goal, specific objective, or standard.

Norm-Referenced Assessment: Compares a student's performance against other students (a national group or other "norm")

- Alternate Assessments

Interim/Benchmark Assessment

- Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.

Unit 3: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving</p> <p>Connect Previous Knowledge to New Learning</p> <p>Making Thinking Visible</p> <p>Develop and Demonstrate Mathematical Practices</p> <p>Inquiry-Oriented and Exploratory Approach</p> <p>Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations</p> <p>Explain the Rationale of your Math Work</p> <p>Quick Writes</p> <p>Pair/Trio Sharing</p> <p>Turn and Talk Charting Gallery</p> <p>Walks</p> <p>Small Group and Whole Class Discussions</p> <p>Student Modeling</p>	<p>Analyze Student Work</p> <p>Identify Student's Mathematical Understanding</p> <p>Identify Student's Mathematical Misunderstandings</p> <p>Interviews</p> <p>Role Playing</p> <p>Diagrams, Charts, Tables, and Graphs</p> <p>Anticipate Likely and Possible Student Responses</p> <p>Collect Different Student Approaches</p>	<p>Multiple Response Strategies</p> <p>Asking Assessing and Advancing Questions</p> <p>Revoicing</p> <p>Marking</p> <p>Recapping</p> <p>Challenging Pressing for Accuracy and Reasoning</p> <p>Maintain the Cognitive Demand</p>
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Content Area: Geometry	Grade Level : Second
Unit 4: Reasons with Shapes and Represent Data	Time Frame: May - June
Interdisciplinary Connections	
<p>NGSS Connection:</p> <p>Engineering Design</p> <ul style="list-style-type: none"> • K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 2.MD.D.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. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. • K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 2.MD.D.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. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. <p>Structure and Properties of Matter</p> <ul style="list-style-type: none"> • 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> 2.MD.D.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. <p>Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> • 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. <ul style="list-style-type: none"> ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.2 Reason abstractly and quantitatively. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.4 Model with mathematics. ○ <u>Cross cutting concepts to NJSL math standard(s):</u> MP.5 Use appropriate tools strategically. 	

- 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSLS math standard(s):** 2.MD.D.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.

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.2 Reason abstractly and quantitatively.
 - **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
 - **Cross cutting concepts to NJSLS math standard(s):** 2.MD.D.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.

ELA Connection:

Reading Informational Text

- RI.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI.2.2. Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
- RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Text Types and Purposes

- W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.
- W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Comprehension and Collaboration

- SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - A. Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - B. Build on others' talk in conversations by linking their explicit comments to the remarks of others.
 - C. Ask for clarification and further explanation as needed about the topics and texts under discussion.

Art Connection

Fine Arts Standard 1.3.2.D.2 Children observe and discuss the geometric shapes found in two pieces of artwork before eventually creating their own mobiles that demonstrate their newly acquired knowledge about shapes.

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee

Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.

CRP2. Apply appropriate academic and technical skills.

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

9.1 Personal Financial Literacy: By the end of grade 4, students should be able to...

STRAND A: INCOME AND CAREERS

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.2 Career Awareness, Exploration, and Preparation: By the end of grade 4, students will be able to...

STRAND A: CAREER AWARENESS

- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Technology Standards (8.1 and 8.2)

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

C. Design: *The design process is a systematic approach to solving problems.*

The attributes of design.

8.2.2.C.1: Brainstorm ideas on how to solve a problem or build a product.

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All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

D. Abilities for a Technological World: *The designed world is the product of a design process that provides the means to convert resources into products and systems.*

Assess the impact of products and systems.

8.2.2.D.5: Identify how using a tool (such as a bucket or wagon) aids in reducing work.

Unit 4: Reason with Shapes and Represent Data

Standards:

2.OA.B. 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.*
*(benchmarked)

2.NBT.B. 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. *(benchmarked)

2.MD.C. Work with time and money

- 2.MD.C.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?*
 - 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.
- 2.MD.D.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.

2.G.A. Reason with shapes and their attributes.

- 2.G.A.1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- 2.G.A.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.

Essential Questions:

- How do I identify position?
- How can I compare shapes?
- How do I identify and compare three dimensional shapes?
- Why do we need to identify shapes?
- Why would we partition shapes?

Enduring Understanding:

Learning Goal 1: Draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Learning Goal 2: 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, and four fourths.

Learning Goal 3: Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using the \$ and ¢ symbols appropriately.

Learning Goal 4: Use tools of measurement to measure lengths of several objects to the nearest whole unit and represent the data on a line plot with appropriate whole number units on the horizontal scale.

Learning Goal 5: 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 the graph.

Learning Goal 6: Fluently add and subtract within 20 using mental strategies.

Learning Goal 7: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Knowledge and Skills:

Concept 1: Equal shares of identical wholes need not have the same shape.

Concept 2: Know the value of dollar bills, quarters, dimes, nickels, and pennies.

Concept 3: Generate data.

Demonstration of Learning:

Students are able to: (TLWBAT/SWBAT):

Objective 1: draw shapes having specified attributes (e.g. number of equal faces, number of angles)

Objective 2: identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Objective 3: partition rectangles into two, three, or four equal shares.

Objective 4: partition two same-sized rectangles to show that equal shares of identical wholes need not have the same shape.

Objective 5: describe the shares using the words halves, thirds, fourths, half of, a third of, a fourth of, etc.

Objective 6: recognize and then describe the whole as two halves, three thirds, four fourths.

Objective 7: identify dollar bills, quarters, dimes, nickels, and pennies. Using dollar bills, quarters, dimes, nickels, and pennies, count to determine the total amount of money.

Objective 8: solve word problems involving dollar bills, quarters, dimes, nickels, and pennies.

Objective 9: generate measurement data by measuring lengths, to the nearest whole unit, of several objects or by making repeated measurements of the same object.

Objective 10: record the measurements in a line plot having a horizontal scale in whole number units.

Objective 11: draw a bar and picture graph to represent a data set with up to four categories.

Objective 12: use information in a bar graph to solve simple put together, take apart, and compare problems.

			Objective 13: add and subtract within <u>20</u> using mental strategies with accuracy and efficiency.					
			Objective 14: with accuracy and efficiency, add and subtract within 100 using place value strategies, properties of operations and/or the relationship between addition and subtraction.					
Core Instructional and Supplemental Materials: Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. <i>McGraw-Hill Education: My Math grades k-5</i> . McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com <ul style="list-style-type: none">• “Model the Math” activities in Teacher Edition for each lesson• “Literature Connection” found in Teacher Edition for each lesson• “Real-World Problem Solving Reader”• RTI Differentiated Instruction / ELL Support for each chapter• Laptops• Math centers/stations• Video tutorials for anticipatory set/guided visuals• Anchor charts created by teachers• Reference sheets created by teachers• Vocabulary Activities/Math Word Wall• Problem of the day(s)/Weeks			Technology Integration: <ul style="list-style-type: none">• www.ixl.com• www.softschools.com• www.mathisfun.com• www.jmathpage.com• www.illuminations.nctm.org• www.k-5mathteachingresources.com• https://gradeKcommoncoremath.wikispaces.hcpss.org/kindergarten+home• www.connectED.mcgraw-hill.com• www.xtramath.com• www.khanacademy.com• www.aaa.com			Illustrative Mathematics: <ul style="list-style-type: none">• 2.MD.C.8 Delayed Gratification• 2.MD.D.9 Hand Span Measures• 2.MD.D.9 The Longest Walk• 2.MD.D.10 Favorite Ice Cream Flavor• 2.NBT.B.5 Saving Money 1• 2.NBT.B.5 Saving Money 2		
Suggested Activities: Manipulatives: geometric shapes, pattern blocks, pipe cleaners, clay, count edges, vertices		Video Tutorials Clock games		Matching shapes games Tracing paper activity				

Formative/Summative/Benchmark Assessments:

Diagnostic Assessment (as Pre-Assessment): Assesses a student's strengths, weaknesses, knowledge, and skills prior to instruction.

- STAR 360, iXL, Pre-assessments per grade level
- Summer packet review
- Daily Problem of the Day
- Diagnostic Pre-Chapter Assessment "Am I Ready" for each chapter

Formative Assessments: Assesses a student's performance during instruction, and usually occurs regularly throughout the instruction process.

- Writing Prompts, Journals, and Portfolios, Do-Now(s), Exit Tickets, iXL (performance assessments), Hands on Labs, Projects, Menu Choice boards, Anticipatory Sets, Problem of the Week

Summative Assessments: Measures a student's achievement at the end of instruction.

- Diagnostic Quizzes, Activities, Tasks, Challenge Problems, Unit Tests, Chapter Tests, End of Unit Writing Submissions, End of Unit Projects, Benchmark Assessments, midterms and finals (if applicable per grade level)
- Assessment Masters – Diagnostic Test for each unit Chapter Test – on level (2A)
- STAR 360 benchmark assessments

Criterion-Referenced Assessment: Measures a student's performance against a goal, specific objective, or standard.

Norm-Referenced Assessment: Compares a student's performance against other students (a national group or other "norm")

- Alternate Assessments

Interim/Benchmark Assessment

- Evaluates student performance at periodic intervals, frequently at the end of a grading period. Can predict student performance on end-of-the-year summative assessments.

Unit 4: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs 	<ul style="list-style-type: none"> ❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling ❖ Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ E-Dictionaries, bilingual dictionaries ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests with various types of questions ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
At Risk	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Vocabulary lists ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Chunking ❖ Extended time ❖ Differentiated instructional outcomes ❖ Use of technology ❖ Partner work ❖ Frequent checks for understanding 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play
IEP/504	<ul style="list-style-type: none"> ❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended... ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating ❖ Use of technology 	<ul style="list-style-type: none"> ❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	<ul style="list-style-type: none"> ❖ Provide word boxes ❖ Use of a calculator ❖ Present fewer multiple choice answers ❖ Acknowledge alternate responses such as pictures and/or verbal instead of written ❖ Teacher may scribe for student ❖ Oral assessment instead of written 	<ul style="list-style-type: none"> ❖ Small group/one-to-one instruction ❖ Teach information processing strategies ❖ Chunking ❖ Frequent checks for understanding ❖ Access to teacher created notes ❖ Use of visual and multisensory formats ❖ Use of assistive technology ❖ Use of prompts ❖ Vocabulary walls and anchor charts available ❖ Provide a Study Guide ❖ Graphic organizers ❖ Teacher modeling or anchor charts on board ❖ Provide multi-level reading material ❖ Chunk learning into smaller segments ❖ Small group instruction 	
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Instructional Routines for Core Instructional Delivery

<p>Collaborative Problem Solving</p> <p>Connect Previous Knowledge to New Learning</p> <p>Making Thinking Visible</p> <p>Develop and Demonstrate Mathematical Practices</p> <p>Inquiry-Oriented and Exploratory Approach</p> <p>Multiple Solution Paths and Strategies</p>	<p>Use of Multiple Representations</p> <p>Explain the Rationale of your Math Work</p> <p>Quick Writes</p> <p>Pair/Trio Sharing</p> <p>Turn and Talk Charting Gallery</p> <p>Walks</p> <p>Small Group and Whole Class Discussions</p> <p>Student Modeling</p>	<p>Analyze Student Work</p> <p>Identify Student's Mathematical Understanding</p> <p>Identify Student's Mathematical Misunderstandings</p> <p>Interviews</p> <p>Role Playing</p> <p>Diagrams, Charts, Tables, and Graphs</p> <p>Anticipate Likely and Possible Student Responses</p> <p>Collect Different Student Approaches</p>	<p>Multiple Response Strategies</p> <p>Asking Assessing and Advancing Questions</p> <p>Revoicing</p> <p>Marking</p> <p>Recapping</p> <p>Challenging Pressing for Accuracy and Reasoning</p> <p>Maintain the Cognitive Demand</p>
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