Woodland Park Mathematics Curriculum

Mathematics Curriculum Map

1st 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 preserver in solving them**. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to the 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 NJSLS 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.

1ˢᵗ Grade Overview:

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;**
   a. Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

2. **Developing understanding of whole number relationships and place value, including grouping in tens and ones;**
   a. Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

3. **Developing understanding of linear measurement and measuring lengths as iterating length units; and**
   a. Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.

4. **Reasoning about attributes of, and composing and decomposing geometric shapes.**
   a. Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

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	

First Grade Table of Contents	
Mathematics Unit Title:	
Unit 1: Add and Subtract within 10	September –December
Unit 2: Add and Subtract within 20	January- March
Unit 3: Place Value, Measurement, & Shapes	End of March-April
Unit 4: Reason with Shape and their Attributes	May-June

Content Area: Numbers and Operations with Base 10	Grade Level : First
Unit 1: Add and Subtract within 10	Time Frame: September –December

Interdisciplinary Connections

NGSS Connection:

1-ESS1 Earth's Place in the Universe

- 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem.
    - **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):** MP.5 Use appropriate tools strategically.

ELA Connection:

Fluency

- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

Production and Distribution of Writing

- W.1.5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- W.1.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1- ESS1-1),(1-ESS1-2)
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Comprehension and Collaboration

- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Social Studies Connection:

- Standard 6.1.4.D.12: Explain how folklore and the actions of famous historical and fictional characters from New Jersey and other regions of the United States contributed to the American national heritage.
- Standard 6.1.4.C.14: Compare different regions of New Jersey to determine the role that geography, natural resources, climate, transportation, technology, and/or the labor force play in economic opportunities.

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.

CRP6. Demonstrate creativity and innovation.
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

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.3 Explain what a budget is and why it is important.
9.1.4.B.4 Identify common household expense categories and sources of income.

STRAND C: CREDIT AND DEBT MANAGEMENT
9.1.4.C.1 Explain why people borrow money and the relationship between credit and debt.

STRAND D: PLANNING, SAVING, AND INVESTING
9.1.4.D.1 Determine various ways to save.

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.

E: Research and Information Fluency: *Students apply digital tools to gather, evaluate, and use information.*

Plan strategies to guide inquiry

Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.

8.1.2.E.1: Use digital tools and online resources to explore a problem or issue.

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.

Unit 1: Add and Subtract within 10

Standards:

1.0A Represent and solve problems involving addition and subtraction.
- 🟩 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem*. ***(benchmarked).**

1.OA.B. Understand and apply properties of operations and the relationship between addition and subtraction.
- 🟩 1.OA.B.3. Apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)* **(Students need not use formal terms for these properties)** ***(benchmarked).**

- 🟩 1.OA.B.4. Understand subtraction as an unknown-addend problem. ***For example, subtract 10 - 8 by finding the number that makes 10 when added to 8.***

1.OA.C. Add and subtract within 20.
- 🟩 1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting 2 to add 2).

1.OA.D. Work with addition and subtraction equations.
- 🟩 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false**? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.* ***(benchmarked).**
- 🟩
- 🟩 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. ***For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _.*** ***(benchmarked).**

1.NBT.A. Extend the counting sequence.
- 🟩 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral ***(benchmarked).**

Essential Questions:	**Enduring Understanding:**
- How do you add numbers? - How do you subtract numbers? - How do you use strategies to add numbers? - How do you use strategies to subtract numbers?	**Learning Goal 1**: Use addition and subtraction <u>within 10</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.

- How does where the digits are located affect how one reads the number? - How do counting patterns help one to count? - Why is place value important? - How does place value help one find the answers to addition and subtraction problems?	**Learning Goal 2***: Apply properties of operations (commutative property) as strategies to add or subtract <u>within 10.</u> **Learning Goal 3**: Solve subtraction problems, <u>within 10</u>, by representing subtraction as an unknown added problem and finding the unknown addend **Learning Goal 4**: Count on to add and count backwards to subtract to solve addition and subtraction problems <u>within 10.</u> **Learning Goal 5**: Determine if addition and subtraction equations, <u>within 10,</u> are true or false. **Learning Goal 6**: Solve addition and subtraction equations, <u>within 10</u>, by finding the missing whole number in any position. **Learning Goal 7**: Count to 100 orally, read and write numerals, and write numerals to represent the number of objects <u>(up to 100).</u>
Knowledge and Skills: **Concept 1**: Symbol (unknowns) can be in any position. **Concept 2**: Knowing 4 + 3 means that 3 + 4 is also known (commutative property/fact families). **Concept 3**: When adding, the numbers need not be added in any particular order. **Concept 4**: Subtraction can be represented as an unknown-addend problem. **Concept 5**: Finding 9 minus 3 means solving ? + 3 = 9 or 3 + ? = 9 (fact families). **Concept 6:** Counting can be used to add and subtract.	**Demonstration of Learning:** *Students are able to: (TLWBAT/SWBAT):* **Objective 1**: add, using objects and drawings, to solve word problems involving situations of adding to and putting together. **Objective 2:** subtract, using objects and drawings, to solve world problems involving situations of taking from and taking apart. **Objective 3**: add and subtract, within 10, using properties of operations as strategies (commutative property). **Objective 4**: represent subtraction as an unknown addend problem. **Objective 5**: solve subtraction problems, <u>within 10</u>, using unknown addends. **Objective 6**: count on to add and count back to subtract. **Objective 7**: determine if addition and subtraction equations are true or false.

Concept 7: The meaning of the equal sign.	**Objective 8**: determine the unknown number that makes an equation true.
Concept 8: True and false statements.	**Objective 9**: solve addition or subtraction equations by finding the missing whole number.
Concept 9: The expression can be on the right side of the equal sign (*e.g. 7 = 8 – 1*).	**Objective 10**: count orally by ones up to 100.
Concept 10: Both the left and right side of the equal sign may contain expressions (e.g. 5 + 2 = 1 + 4).	**Objective 11**: count up to 100 beginning at any number less than 100.
	Objective 12: read and write numerals up to 100.
Concept 11: Number names and the count sequence up to 100.	**Objective 13**: represent a number of objects up to 100 with a written number.

Core Instructional and Supplemental Materials:	**Technology Integration**:	**Illustrative Mathematics Integration:**
Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. *McGraw-Hill Education: My Math grades k-5*. McGraw-Hill Education, 2016. "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	- 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 - https://www.education.com - https://www.khanacademy.org/ - https://www.desmos.com/ - www.xtramath.com - www.khanacademy.com - www.happynumbers.com	1.OA.A.1 Sharing Markers 1.OA.B.3 Domino Addition 1.OA.B.4 Cave Game Subtraction 1.OA.D.7 Equality Number Sentences 1.OA.D.8 Kiri's Mathematics Match Game 1.NBT.A.1 Hundred Chart Digit Game

Suggested Activities:

Play Doh numbers, shaving cream

Roll dice- write numbers

Websites

Find numbers around the room

Add three numbers to find the sum

Use a number line to add

Two of Everything: Read: Two of Everything by Lily Toy Hung
https://www.youtube.com/watch?v=TY_NP528ph4

Tens and Ones with the Three Little Pigs: Watch a video read aloud of The Three Little Pigs at:
https://www.youtube.com/watch?v=1WjHqT8dgeQ

Halloween Candy: A brief history about Halloween in ancient as well as modern times at:
https://www.ducksters.com/holidays/halloween.php

The Very Hungry Caterpillar by Eric Carle
https://www.youtube.com/watch?v=PbLPMjxUXmI

Songs

Children's literature

Matching numbers, trace numbers, read numbers

Manipulatives-build numbers

Rainbow write

Faceing Math Books

The Very Hungry Caterpillar: Read: The Very Hungry Caterpillar by Eric Carle
https://www.youtube.com/watch?v=PbLPMjxUXmI

Understand that the answer is called the difference and the minus sign represents take away

Take away a part from the whole

Apple Picking Time
A site full of activities relating to apples at:
https://www.eduplace.com/monthlytheme/september/apples.html

Move two groups of objects together to make a whole

Find sums up to 10 by adding zero

Use different ways to make 10
Identify whether a math statement is true or false

Use doubles and near doubles to find the sum

Farm Animals: Read an online book about Life in A Farm at:
https://www.ezschool.com/stories/FarmLife.html

Use one-to-one correspondence to understand the remaining objects are the difference.

Use related addition facts to help find related subtraction facts
Two of Everything by Lily Toy Hung
https://www.youtube.com/watch?v=TY_NP528ph4

Two Ways to Count to 10 by Ruby Dee

The Doorbell Rang by Pat Hutchins
https://www.youtube.com/watch?v=ESHLF92_rBw

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 1: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs	❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating	❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

	❖ Use of technology ❖ 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	❖ Use of technology ❖ 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	

Instructional Routines for Core Instructional Delivery

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

Content Area: Operations and Algebraic Thinking	Grade Level : First
Unit 2: Add and Subtract within 20 (two digits)	**Time Frame: January - March**

Interdisciplinary Connections

NGSS Connection

1-LS1: From Molecules to Organisms: Structures and Processes

- 1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
  - o **Cross cutting concepts to NJSLS math standard(s):** 1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols >, =, and <.

1-ESS1 Earth's Place in the Universe

- 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.
  - o **Cross cutting concepts to NJSLS math standard(s):** 1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
  - o **Cross cutting concepts to NJSLS math standard(s):** 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem.

ELA Connection:

Reading Informational

- RI.1.1 Ask and answer questions about key details in a text.
- RI.1.2 Identify the main topic and retell key details of a text.
- RI.1.10 With prompting and support, read informational texts appropriately complex for grade.

Fluency

- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

Production and Distribution of Writing

- W.1.5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- W.1.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).

Comprehension and Collaboration

- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Social Studies Connection:

B. Geography, People, and the Environment

- 6.1.4.B.10: Identify major cities in New Jersey, the United States, and major world regions, and explain how maps, globes, and demographic tools can be used to understand tangible and intangible cultural differences.

C. Economics, Innovation and Technology

- 6.1.4.C.10 Explain the role of money, savings, debt, and investment in individuals' lives.

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.

CRP11. Use technology to enhance productivity.

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

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

STRAND B: MONEY MANAGEMENT
9.1.4.B.4 Identify common household expense categories and sources of income.

STRAND D: PLANNING, SAVING, AND INVESTING
9.1.4.D.3 Distinguish between saving and investing.

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.

E: Research and Information Fluency: *Students apply digital tools to gather, evaluate, and use information.*
Plan strategies to guide inquiry
Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.

8.1.2.E.1: Use digital tools and online resources to explore a problem or issue.

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.
8.2.2.C.5: Describe how the parts of a common toy or tool interact and work as part of a system.

Unit 2: Add and Subtract within 20

Standards:

1.OA Represent and solve problems involving addition and subtraction.

■ 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem*. ***(benchmarked)**

■ 1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem*

☐ 1.MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

1.OA.D Work with addition and subtraction equations

■ 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. ***For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2***. ***(benchmarked)**

■ 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _*. ***(benchmarked)**

1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction

■ 1.OA.B.3. Apply properties of operations as strategies to add and subtract. ***Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known.*** *(Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)* **(Students need not use formal terms for these properties)** ***(benchmarked)**

1.OA.C Add and subtract within 20

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

1.NBT.B Understand Place Value

■ 1.NBT.B.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

■ 1.NBT.B.2(a) 10 can be thought of as a bundle of ten ones — called a "ten."

■ 1.NBT.B.2(b) The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

■ 1.NBT.B.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

1.NBT.A Extend the counting sequence

■ 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral ***(benchmarked)**

Essential Questions:	Enduring Understanding:
- How can I use place value? - How can I add and subtract two-digit numbers? - How does where the digits are located affect how one reads the number? - How do counting patterns help one to count? - Why is place value important? - How does place value help one find the answers to addition and subtraction problems?	**Learning Goal 1**: Use addition and subtraction <u>within 20</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions. **Learning Goal 2**: Determine if addition and subtraction equations, <u>within 20,</u> are true or false. **Learning Goal 3**: Solve addition and subtraction equations, <u>within 20</u>, by finding the missing whole number in any position. **Learning Goal 4**: Apply properties of operations as strategies (Associative Property) to add or subtract <u>within 20.</u> **Learning Goal 5**: Add and subtract whole numbers <u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc. **Learning Goal 6**: Solve addition word problems with three whole numbers with sums less than or equal to 20. **Learning Goal 7**: Organize, represent, and interpret data with up to three categories, compare the number of data points among the categories, and find the total number of data points. *(supporting standard learning goal)* **Learning Goal 8**: Compose and decompose numbers <u>to 20</u> to identify the value of the number in the tens and ones place. **Learning Goal 9**: Use the meaning of tens and ones digits to record comparisons of 2 two- digit numbers using >, =, and < symbols. **Learning Goal 10**: Use the meaning of tens and ones digits to record comparisons of 2 two- digit numbers using >, =, and < symbols.

Knowledge and Skills:	Demonstration of Learning:
Concept 1: Symbols can be used to represent unknown numbers.	***Students are able to: (TLWBAT/SWBAT):***
	Objective 1: add, using drawings and equations, to solve word problems involving situations of adding to and putting together.
Concept 2: The symbol (unknowns) can be in any position.	
Concept 3: When adding, the numbers need not be added in order.	**Objective 2**: subtract, using drawings and equations, to solve world problems involving situations of taking from and taking apart.
Concept 4: To add 2 + 6 + 4, the second two numbers can be added first to make a ten. [e.g., 2 + 6 + 4 = 2 + 10 = 12 (Associative Property)]	**Objective 3**: determine if addition and subtraction equations are true or false
	Objective 4: determine the unknown number that makes an equation true.
Concept 5: Different strategies can be used to add and subtract.	**Objective 5**: solve addition or subtraction equations by finding the missing whole number.
Concept 6: Symbols can be used to represent unknown numbers.	**Objective 6**: add and subtract, within 20, using properties of operations as strategies. (Associative Property).
Concept 7: The symbol (unknowns) can be in any position.	**Objective 7**: add and subtract <u>within 20</u>, using the following strategies:
Concept 8: Numbers can be organized to represent data.	- counting on; - making ten; - composing numbers; - decomposing numbers leading to a ten;
Concept 9: Two digits represent amounts of tens and ones.	- relationship between addition and subtraction, and - creating equivalent but easier or known sums.
Concept 10: 10 can be thought of as a bundle of ten ones — called a *ten.*	**Objective 8**: fluently add or subtract whole numbers <u>within 20.</u>
Concept 11: Use place value understanding to compare two digit numbers.	**Objective 9**: use *objects and drawings* to represent word problems that call for less than or equal to 20.
Concept 12: Comparing numbers using symbols.	**Objective 10**: organize objects, representing data, in up to three categories.
Concept 13: Number names and the count sequence up to 120.	**Objective 11**: represent data with objects, drawings, or numerals, in up to three categories.

	Objective 13: ask and answer questions about:
	• the total number of data points;
	• the number of data points in each category, and
	• how many more or less are in one category than in another.
	Objective 14: compose numbers to 20 and decompose numbers to 20.
	Objective 15: identify the value of the number in the tens or ones place.
	Objective 16: use the meaning of tens and ones digits to compare 2 two-digit numbers using >, =, and < symbols.
	Objective 17: count orally by ones <u>up to 120.</u> Count up to 120 beginning at any number less than 120.
	Objective 18: read and write numerals up to 120.
	Objective 19: represent a number of objects up to 120 with a written number.

Core Instructional and Supplemental Materials:	**Technology Integration**:	**Illustrative Mathematics:**
Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. *McGraw-Hill Education: My Math grades k-5*. McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com • "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	• 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 • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/	1.OA.A.1 School Supplies 1.OA.D.7 Valid Equalities? 1.OA.D.8 Find the Missing Number 1.OA.B.3 Doubles? 1.OA.C.6 $20 Dot Map 1.OA.A.2 Daisies in vases 1.NBT.B.2 Roll & Build 1.NBT.B.3 Ordering Numbers 1.NBT.A.1 Start/Stop Counting 2

• Reference sheets created by teachers • Vocabulary Activities/Math Word Wall • Problem of the day(s)/Weeks	• www.xtramath.com • www.happynumbers.com • www.khanacademy.com

Suggested Activities

Choose a number card, have students create bundle of tens and some left over (14 = 10+4 left over)	Use hundreds chart to count on or find what number comes next	*One..Two..Three..Sassafras*! (number order) by Stuart Murphy
Students will model numbers with hundred/ten blocks/dimes	Find missing number in patters (16, ___, ___, 19) Use base 10 blocks to model addition/subtraction sentence in word problems	*Spunky Monkeys on Parade* (counting by 2s, 3s, 4s) by Stuart Murphy *Leaping Lizards* (counting by 5's and 10's) by Stuart Murphy
Create two digit numbers with ten blocks and ones & compare	Create and use number lines to add/subtract	*The Penny Pot* (Counting Coins) By Stuart Murphy
Use Nickels to skip count by 5, dimes for 10 Faceing Math Books	*Earth Day Hooray!* (place value) by Stuart Murphy	Create < > with popsicle sticks (alligator eats bigger number)

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 2: Differentiation/Accommodations/Modifications

	Content Curriculum, standards	Process How students make sense or understand information being taught	Product Evidence of Learning
G&T	❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs	❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating	❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

| | Use of technology 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 | Use of technology 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 | |

Instructional Routines for Core Instructional Delivery

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

Content Area: Measurement and Data	Grade Level : First
Unit 3: Place value, measurement, and shapes	Time Frame: March-April

Interdisciplinary Connections

NGSS Connection

1-PS4 Waves and their Applications in Technologies for Information Transfer
- 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.MD.A.2 Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
    - **Cross cutting concepts to NJSLS math standard(s):** MP.5 Use appropriate tools strategically. (1-PS4-4)

1-LS1: From Molecules to Organisms: Structures and Processes
- 1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

1-LS3 Heredity: Inheritance and Variation of Traits
- 1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
    - **Cross cutting concepts to NJSLS math standard(s):** 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

ELA Connection:

Fluency
- RI.1.1 Ask and answer questions about key details in a text.
- RI.1.2 Identify the main topic and retell key details of a text.
- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.
- RI.1.10 With prompting and support, read informational texts appropriately complex for grade.

Production and Distribution of Writing
- W.1.2 Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2)
- W.1.5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- W.1.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Comprehension and Collaboration
- SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

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.

CRP6. Demonstrate creativity and innovation.
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

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.5 Identify ways to earn and save

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.

8.2 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.

Unit 3: Place Value, Measurement, & Shapes

Standards:

1.NBT.B. Understand place value.
- 1.NBT.B.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
- 1.NBT.B.2(c) The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). *(benchmarked)*

1.NBT.C. Use place value understanding and properties of operations to add and subtract.
- 1.NBT.C.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g. base ten blocks) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. *(benchmarked)*
- 1.NBT.C.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- 1.NBT.C.6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

1.MD.A. Measure lengths indirectly and by iterating length units.
- 1.MD.A.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object
- 1.MD.A.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

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

1.MD.B Tell and write time.
- 1.MD.B.3. Tell and write time in hours and half-hours using analog and digital clocks.

Essential Questions:	Enduring Understanding
- How do graphs help us organize data? - How do I make and read graphs? - How do I determine length and time?	**Learning Goal 1**: Compose and decompose numbers to 90 into tens, identifying the value of the number in the tens and ones place.

- How can I recognize two-dimensional shapes and equal shares? - How can I identify three-dimensional shapes? - How do we measure the length of an object? - How do we compare the lengths of two objects? - 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 can representing data help us to interpret it and draw conclusions?	**Learning Goal 2**: Add a 2-digit and a 1-digit number using concrete models and drawings with a place value strategy or properties of operations*;* explain or show how the model relates to the strategy (sums within 100). **Learning Goal 3**: Add a 2-digit number and a multiple of 10, using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100). **Learning Goal 4**: Explain, given a two-digit number, how to find 10 more or ten less than the number without having to count. **Learning Goal 5**: Subtract a multiple of 10 from a multiple of 10 (both within the range 10-90) using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100). **Learning Goal 6**: Order three objects by length and compare the lengths of two objects by using the third object (e.g., if the crayon is shorter than the marker and the marker is shorter than the pencil then the crayon is shorter than the pencil). **Learning Goal 7**: Order three objects by length and compare the lengths of two objects by using the third object (e.g., if the crayon is shorter than the marker and the marker is shorter than the pencil then the crayon is shorter than the pencil). **Learning Goal 8**: Tell and write time to the half-hour using the term *o'clock* and using digital notation (include both analog and digital clocks). **Learning Goal 9**: Add and subtract whole numbers <u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc
Knowledge and Skills: **Concept 1**: Two digits represent amounts of tens and ones.	**Demonstration of Learning** ***Students are able to: (TLWBAT/SWBAT):*** **Objective 1**: compose tens to make numbers up to 90.

Concept 2: The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**Objective 2**: decompose numbers up to 90, into tens.
	Objective 3: identify the value of the number in the tens or ones place.
Concept 3: In adding two-digit numbers, add tens with tens and ones with ones.	**Objective 4**: use concrete models and drawings with a strategy based on place value to add a two-digit number and a one-digit number.
Concept 4: In adding two-digit numbers, sometimes it is necessary to compose a ten	**Objective 5**: use concrete models and drawings with properties of operations to add a two-digit number and a one-digit number.
Concept 5: Objects can be compared and ordered based on length.	**Objective 6**: use concrete models and drawings with a strategy based on place value to add a two-digit number and a multiple of 10.
Concept 6: The length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	**Objective 7**: use concrete models and drawings with properties of operations to add a two-digit number and a multiple of 10.
Concept 7: The length measurement of an object is the number of same-size length units that span it with no gaps or overlaps	**Objective 8**: explain or show how the model relates to the strategy
	Objective 9: given a two-digit number, find 10 more than the number without counting.
Concept 8: Time is represented on analog and on digital clocks.	**Objective 10**: given a two-digit number, find 10 less than the number without counting.
Concept 9: Analog clocks have *hands* that indicate the time in hours and minutes	**Objective 11**: explain, given a two-digit number, how to find 10 more or ten less than the number without counting.
Concept 10: Different strategies can be used to add and subtract.	**Objective 12**: use concrete models and drawings with a strategy based on place value to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90).
	Objective 13: use concrete models and drawings with properties of operations to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90).
	Objective 14: explain or show how the model relates to the strategy.
	Objective 15: compare the length of two objects.

Objective 16: compare the length of two objects by using a third object as a measuring tool.

Objective 17: order three objects by length.

Objective 18: lay multiple copies of a shorter object (the length unit) end to end.

Objective 19: use a shorter object to express the length of a longer object.

Objective 20: tell and write time in hours using analog and digital clocks.

Objective 21: tell and write time in half-hours using analog and digital clocks.

Objective 22: use the term *o'clock* in reporting time to the hour.

Objective 23: add and subtract within 20, using the following strategies:
- counting on;
- making ten;
- composing numbers;
- decomposing numbers;
- relationship between addition and subtraction, and
- creating equivalent but easier or known sums.

Objective 24: fluently add or subtract whole numbers within 20.

Core Instructional and Supplemental Materials:	Technology Integration:	Illustrative Mathematics:
Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. *McGraw-Hill Education: My Math grades k-5.* McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com • "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	• 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 • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.xtramath.com • www.happynumbers.com • www.khanacademy.com	1.NBT.C.4 Ford and Logan Add 45+36 1.NBT.C.5 Number Square 1.MD.A.2 Measure Me! 1.MD.A.2 Measuring Blocks 1.MD.A.2 Growing Bean Plants 1.MD.B Making a clock 1.OA.C.6 Making a ten

Suggested Activities:

My Math Book activities Vocabulary Activities/Math Word Wall Task: Piñata Candy: Learn about the history of the piñata at: http://www.spanishtown.ca/familystory3.htm#.VDHplU10ypo Task: Ladybug Lengths: Read interesting facts about ladybugs as well as learn about their life cycle at: http://kidsgrowingstrong.org/ladybug_life Task: Time to the Hour: Watch a video read aloud of the book Franklin Tells Time at: http://www.youtube.com/watch?v=gsLrP4Av9C8	Model the math activity found in TE Create and read a whole class tally chart (e.g 2 choices-favorite snack) *Lemonade for Sale* (Bar Graphs) by Stuart Murphy Faceing Math Books Task: Cherry: A history about cherries at: http://www.thenibble.com/reviews/main/fruits/cherry-facts2.asp	Create and read whole class bar graph (e.g 3 choices-favorite sandwich) Create and read a whole class picture graph (e.g 2-3 choices-weather) Roll Dice 20 times. Create tally table *Tally O'Mally* (Tallying) by Stuart Murphy MD Tasks: Read Alouds: How Big is a Foot? By Rolf Myller https://www.youtube.com/watch?v=CYh4wK3yu6s

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	❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs	❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ 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	❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating	❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

❖ Use of technology ❖ 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	❖ Use of technology ❖ 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	

Instructional Routines for Core Instructional Delivery

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

Content Area: Geometry	Grade Level : First
Unit 4: Reason with Shapes and Attributes	Time Frame: May-June

Interdisciplinary Connections

NGSS Connection:

1-LS1: From Molecules to Organisms: Structures and Processes

- 1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
  - o **Cross cutting concepts to NJSLS math standard(s):** 1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and   sometimes it is necessary to compose a ten.

1.Space Systems: Patterns and Cycles

- 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.
  - o **Cross cutting concepts to NJSLS math standard(s):** 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem.
  - o **Cross cutting concepts to NJSLS math standard(s):** MP.2 Reason abstractly and quantitatively.
  - o **Cross cutting concepts to NJSLS math standard(s):** MP.4 Model with mathematics.
  - o **Cross cutting concepts to NJSLS math standard(s):** MP.5 Use appropriate tools strategically.

ELA Connection:

Fluency

- RF.1.4. Read with sufficient accuracy and fluency to support comprehension.

Production and Distribution of Writing

- W.1.5. With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- W.1.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Comprehension and Collaboration

- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

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.

CRP6. Demonstrate creativity and innovation.
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

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…

N/A for this unit.

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.

    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 <u>resources</u>.

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. 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.

Unit 4: Reasons with Shapes and their Attributes

Standards:

1.OA.A. Represent and solve problems involving addition and subtraction
- ■ 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem*. **(benchmarked)**

1.OA.C. Add and subtract within 20
- ■ 1.OA.C.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 − 4 = 13 − 3 − 1 = 10 − 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 − 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13) **(benchmarked)**

1.NBT.A. Extend the counting sequence.
- ■ 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. **(benchmarked)**

1.NBT.C. Use place value understanding and properties of operations to add and subtract.
- ■ 1.NBT.C.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g. base ten blocks) or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. **(benchmarked)**

1.G.A. Reason with shapes and their attributes.
- ◎ 1.G.A.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- ◎ 1.G.A.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
- ◎ 1.G.A.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares

Essential Questions:	Enduring Understanding
- How can I use place value? - How can I add and subtract two-digit numbers? - How can I recognize two-dimensional shapes, three-dimensional shapes, and equal shares?	**Learning Goal 1**: Use addition and subtraction <u>within 20</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions. **Learning Goal 2**: Add and subtract whole numbers <u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc. **Learning Goal 3:** Count to 120 orally, read and write numerals, and write numerals to represent the number of objects <u>(up to 120)</u>. **Learning Goal 4**: Add a 2-digit and a 1-digit number using concrete models and drawings with a place value strategy or properties of operations; explain or show how the model relates to the strategy (sums within 100). **Learning Goal 5:** Add a 2-digit number and a multiple of 10, using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100). **Learning Goal 6**: Name the attributes of a given two-dimensional shape (square, triangle, rectangle, regular hexagon), distinguishing between defining and non-defining attributes. **Learning Goal 7**: Build and draw shapes when given defining attributes. **Learning Goal 8**: Create a composite shape by composing two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles and quarter circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders), and compose new shapes from the composite shape. **Learning Goal 9**: Partition circles and rectangles into two or four equal shares, describing the shares using halves, fourths, and quarters and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole circle (or rectangle) partitioned into two or four equal shares as *two of*, or *four of* the shares.

Knowledge and Skills:	Demonstration of Learning
	Students are able to: (TLWBAT/SWBAT):
Concept 1: Symbols can be used to represent unknown numbers.	**Objective 1**: compose tens to make numbers up to 90.
Concept 2: The symbol (unknowns) can be in any position.	**Objective 2**: decompose numbers up to 90, into tens.
Concept 3: Different strategies can be used to add and subtract.	**Objective 3**: identify the value of the number in the tens or ones place.
Concept 4: Number names and the count sequence up to 120.	**Objective 4**: use concrete models and drawings with a strategy based on place value to add a two-digit number and a one-digit number.
Concept 5: In adding two-digit numbers, add tens with tens and ones with ones.	**Objective 5**: use concrete models and drawings with properties of operations to add a two-digit number and a one-digit number.
Concept 6: In adding two-digit numbers, sometimes it is necessary to compose a ten.	**Objective 6**: use concrete models and drawings with a strategy based on place value to add a two-digit number and a multiple of 10.
Concept 7: Defining attributes versus non defining attributes	**Objective 7**: use concrete models and drawings with properties of operations to add a two-digit number and a multiple of 10.
Concept 8: Shapes can be composed from other shapes (e.g. trapezoids can be composed from triangles).	**Objective 8**: explain or show how the model relates to the strategy
Concept 9: New shapes can be composed from composite shapes	**Objective 9**: given a two-digit number, find 10 more than the number without counting.
Concept 10: Shapes can be partitioned into equal parts or shares.	**Objective 10**: given a two-digit number, find 10 less than the number without counting.
	Objective 11: explain, given a two-digit number, how to find 10 more or ten less than the number without counting.
Concept 11: Equal shares are named based on the number of shares that make the whole (e.g. halves, fourths, quarters).	**Objective 12**: use concrete models and drawings with a strategy based on place value to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90).

Concept 12: Shares can be described based on their relation to the whole (e.g *half of*, *fourth of*, *quarter of*). **Concept 13**: The whole can be described based on the number of shares. **Concept 14**: Decomposing a whole into more equal shares creates smaller shares.	**Objective 13**: use concrete models and drawings with properties of operations to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90). **Objective 14**: explain or show how the model relates to the strategy. **Objective 15**: compare the length of two objects. **Objective 16**: compare the length of two objects by using a third object as a measuring tool. **Objective 17**: order three objects by length. **Objective 18**: lay multiple copies of a shorter object (the length unit) end to end. **Objective 19**: use a shorter object to express the length of a longer object. **Objective 20**: tell and write time in hours using analog and digital clocks. **Objective 21**: tell and write time in half-hours using analog and digital clocks. **Objective 22**: use the term *o'clock* in reporting time to the hour. **Objective 23**: add and subtract <u>within 20</u>, using the following strategies: • counting on; • making ten; • composing numbers; • decomposing numbers; • relationship between addition and subtraction, and • creating equivalent but easier or known sums. **Objective 24**: fluently add or subtract whole numbers <u>within 20.</u>

Core Instructional and Supplemental Materials:	Technology Integration:	Illustrative Mathematics:
Carter, John A., Ph.D., Cuevas, Gilbert Ph.D., Day, Roger Ph.D., Malloy, Carol Ph.D.. *McGraw-Hill Education: My Math grades k-5.* McGraw-Hill Education, 2016. www.connectED.mcgraw-hill.com • "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 •	• 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 • https://www.education.com • https://www.khanacademy.org/ • https://www.desmos.com/ • www.xtramath.com • www.happynumbers.com • www.khanacademy.com	1.G.A.1 All vs. Only some 1.G.A.1 3-D Shape Sort 1.G.A.2 Make Your Own Puzzle 1.G.A.2 Overlapping Rectangles 1.G.A.3 Equal Shares 1.OA.A.1 Twenty Tickets 1.NBT.A.1 Where Do I Go?

Suggested Activities:	Real world around the home materials of figures for creating composite figures Compare and Contrast	My Math Book Activities Faceing Math Books Geometry Worksheets
Real – World two and three dimensional shapes spy in classroom, at home, and in and around community		

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		❖ Compacting ❖ Flexible grouping ❖ Independent study/set own learning goals ❖ Interest/station groups ❖ Varying levels of resources and materials ❖ Use of technology	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Use of technology ❖ Journals/Logs	❖ Choice boards ❖ Podcast/blog ❖ Debate ❖ Design and conduct experiments ❖ Formulate & defend theory ❖ Design a game ❖ Rubrics
ELL		❖ 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	❖ 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	❖ 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		❖ 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	❖ 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	❖ 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		❖ Compacting ❖ Flexible grouping ❖ Controlled choice ❖ Multi-sensory learning-auditory, visual, kinesthetic, tactile ❖ Pre-teach vocabulary ❖ Visuals/Modeling Varying levels of resources and materials	❖ Tiered Assignments ❖ Leveled questions- written responses, think-pair-share, multiple choice, open ended… ❖ Centers/Stations ❖ Scaffolding ❖ Extended time ❖ Differentiated instructional outcomes ❖ Preferential Seating	❖ Rubrics ❖ Simple to complex ❖ Group tasks ❖ Quizzes, tests ❖ Oral Assessments ❖ Generate charts or diagrams to show what was learned ❖ Act out or role play

- Use of technology - 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	- Use of technology - 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	

Instructional Routines for Core Instructional Delivery

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