

Fair Lawn Public Schools

Fair Lawn, NJ

**Grade 1
Math**

Adopted August

2017

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Grade 1 Mathematics is aligned to the Student Learning Standards and will expand upon topics learned in Kindergarten as well as prepare students for Grade 2 Mathematics.

Grade 1 Math

Fair Lawn School District

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Grade 1 Math

I. Course Synopsis

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.

1. 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. 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. 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.¹
4. 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.

II. Philosophy & Rationale

The mathematics curriculum is completely aligned to the Student Learning Standards for first grade. First grade content required by the Student Learning Standards focuses on the procedures, concepts, and applications in the following areas:

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

As the content is taught, the Student Learning Standards mathematical practices are also woven in, helping to develop the attitudes and habits of mind of those who know and enjoy mathematics and use it effectively. The practices include:

- Problem solving
- Multiple representations
- Reasoning
- Mathematical modeling
- Tool use
- Communication

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).

MATH.PRACTICE.MP1 - Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

MATH.PRACTICE.MP2 - Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

MATH.PRACTICE.MP3 - Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine

domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

MATH.PRACTICE.MP4 - Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

MATH.PRACTICE.MP5 - Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

MATH.PRACTICE.MP6 - Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary

grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

MATH.PRACTICE.MP7 - Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y .

MATH.PRACTICE.MP8 - 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. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

III. Scope & Sequence

Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
1.1 1.11	1.12 – 2.12	3.1 – 3.10	3.11- 4.7	4.8- 5.8	5.8- 6.3	6.4- 7.6	7.6- 8.4	8.4- 9.3	9.3- 9.12

Grade 1 has 9 instructional units (109 lessons).
Each unit is completed in approximately 3-5 weeks.

Unit	Name	Weeks	Topics
1	Counting	Weeks 1-5	<ul style="list-style-type: none"> Counting Number Grids Quick Looks Comparing Numbers Building Towards Fact Fluency Number Stories Collecting and Analyzing Data from Counts Explorations
2	Introducing Addition	Weeks 6-9	<ul style="list-style-type: none"> Strategies for Solving Addition and Subtraction Problems Math Boxes Units and Unit Boxes Calculators Number Stories and Number Models
3	Number Stories	Weeks 10-14	<ul style="list-style-type: none"> Modeling Number Stories Exploring Larger Counts, Pairs, and Lengths Relating Counting to Addition and Subtraction
4	Length and Addition Facts	Weeks 15-18	<ul style="list-style-type: none"> Length Bar Graphs Addition Facts Applying Properties of Operations Finding 10 More or 10 Less
5	Place Value and Comparisons	Weeks 19-23	<ul style="list-style-type: none"> Place Value Comparing Numbers Relation Symbols Measurement Adding Larger Numbers
6	Addition Fact Strategies	Weeks 24-28	<ul style="list-style-type: none"> Clocks and Time Number Stories Using “Helper” Facts to Add

			<ul style="list-style-type: none">● Equivalence● Place Value
7	Subtraction Fact Strategies and Attributes of Shapes	Weeks 29-33	<ul style="list-style-type: none">● Fact Families● Subtraction Fact Strategies● Attributes of Shapes● “What’s My Rule?”● Digital Clocks
8	Geometry	Weeks 34-38	<ul style="list-style-type: none">● Attributes of Shapes and Composite Shapes● Fractional Parts of Shapes● Time and Data● Adding and Subtracting 10
9	Two Digit Addition and Subtraction and Review	Weeks 39-43	<ul style="list-style-type: none">● Adding and Subtracting Within 100● Review and Assessment

IV. Unit Descriptions

Unit 1: Counting

(Weeks 1 - 5)

Enduring Understanding

1. Unit 1 introduces a variety of tools. The number line and number grid provide ways to visualize the order of whole numbers. Children use these tools to solve problems. Not only must they use tools effectively, but children must learn not to blindly trust tools. Children should make sense of the results they obtain with a tool.
2. Children must explain their mathematical thinking clearly and precisely. In Unit 1, children use precision in their work with counting, which includes accuracy and efficiency.

Essential Question(s)

1. Why are specific tools used for mathematics? How do they help solve problems? What other tools can be used to solve problems?
2. When does an answer need to be accurate? When is it appropriate to estimate? Why is it important to use clear labels and units?

Learning Objectives

Children will be able to:

1. Count collections of objects
2. Use the number line to count and compare numbers
3. Explore tools for counting and reason about the attributes of shapes
4. Solve problems by estimating and counting collections of counters
5. Use the number line to tell and solve number stories
6. Compare and order numbers
7. Use tally marks to represent data and to practice counting by 5s and 1s
8. Count and represent data in tally charts
9. Reason about shapes and their attributes
10. Tell and solve number stories to add and subtract within 20
11. Navigate the number grid to add and subtract large numbers

New Jersey Student Learning Standards

- **1.OA.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.
 - **1.OA.5** Relate counting to addition and subtraction (e.g by counting on 2 to add 2).
 - **1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier to known sums.

- **1.NBT.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.
- **1.NBT.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.MD.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.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities
 - a. Mental Math
 - b. Math Message
 - c. Journal pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: Exploring Base-10 Blocks, Area, and Dominoes
 - f. Open Response and Reengagement Lesson: Counting Strategies
 - g. Unit 1 Progress Check and Open Response Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *Monster Squeeze, Penny-Dice, Bunny Hop, Top-It, Rock Paper Scissor, and Rolling for 50*
2. English Language Learners
 - A. Use of visual representations such as the vocabulary picture cards, number grid and counters.
 - B. Provide additional visual input and teach modeling to scaffold for understanding the terms *more/greater than* and *less than*.
 - B. Provide assistance to children as they play *top-it*, model with a partner how to compare numbers during the game using shorter, easier sentence frames
 - C. Use visuals to teach words like *alike, like, and different*
 - D. Encourage children to use pictures and role play to tell number stories
3. Special education/504 students
 - a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards
 - c. Children will identify dot patterns by examining a dice
 - d. To provide concrete experience counting and ordering numbers children will sequence number cards
 - e. Provide experience counting objects and have children label number collections for objects
4. Gifted and talented students
 - a. Extend number comparisons to larger numbers
 - b. Extend work with number stories to have students write their own number stories

- c. To further explore navigating the number grid, have children count up and back on the number grid to add 2-digit numbers

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 2: Introducing Addition

(Weeks 6 - 9)

Enduring Understanding

1. In Unit 2, children make sense of numbers by creating mathematical representations using words, pictures, symbols, or other means to illustrate a mathematical idea. Children represent numbers on ten frames, draw pictures to represent and solve number stories, complete situation diagrams, and write number models using numbers and symbols.
2. Children will see how models are representations that apply to real world situations through number stories. Children will use change diagrams and number models to depict various situations.

Essential Question(s)

1. How are numbers represented?
2. How do I use a mathematical model to represent real world situations?
3. What strategies can I use to make sense of mathematical representations?

Learning Objectives

Children will be able to:

1. Use the counting-on strategy and the turn-around rule for addition.
2. Decompose numbers and identify pairs that add to 10.
3. Work with pairs of numbers that add to 10.
4. Explore subtraction, find pairs of numbers that add to 10, and collect data using a tally chart.
5. Solve an open response problem that involves sums of 10, discuss and learn from other children's solutions and revise their own work.
6. Look at representations of numbers with ten frames and practice an addition strategy of counting-on.
7. Use unit boxes to label objects as they count.
8. Use change-to-more diagrams to solve number stories.
9. Use change-to-less diagrams to solve number stories.
10. Use number models to add and subtract.
11. Find unknown numbers in addition and subtraction number models.

New Jersey Student Learning Standards

- **1.OA.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.

- **1.OA.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)

- **1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

- **1.OA.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 $6 + 6 + 1 = 12 + 1 = 13$).

- **1.OA.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 $8 + ? = 11$, $5 = ? - 3$, $6 + 6 = ?$.

- **1.NBT.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.

- **1.MD.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.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities

- a. Mental Math
- b. Math Message
- c. Journal pages
- d. Writing/Reasoning Prompts
- e. Explorations: Exploring Subtraction, Pairs of Numbers that Add to 10 and Data
- f. Open Response and Reengagement Lesson: Sums of 10
- g. Unit 2 Progress Check and Open Response Assessment
- h. Ongoing Assessment through Check Ins
- i. Games: *Roll and Total, Monster Squeeze, Ten-Frame Top-It, Penny Plate, Subtraction Bingo, Rock, Paper, Scissors, High Roller, Top-It, Bunny Hop, Rolling for 50*

2. English Language Learners

- a. Use of visual representations such as the vocabulary picture cards, number grid and counters.
- b. Provide visual support with *same* and *different* to help children understand the mathematical term *difference*

3. Special Education/504 Students

- a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards
 - c. Quick Look Cards to provide experience decomposing numbers
 - d. Explore subtraction using a concrete model, have children remove cubes from cube train
 - e. Provide additional experience comparing numbers in preparation for *High Roller*
 - f. Have children use craft sticks to represent and solve problems
4. Gifted and Talented Students
- a. Have children use 20 pennies, rather than 10, in two fistful penny addition
 - b. Extend children's work with subtraction, have them tell number stories that can be solved using subtraction

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 3: Number Stories

(Weeks 10-14)

Enduring Understanding

1. In Unit 3, students are encouraged to find ways to make sense of problems before they tackle them. Students use parts-and-total diagrams and number lines as tools to visualize and make sense of number stories. Students are asked to share their thinking as they solve a problem about ordering objects. This sharing forces them to monitor and evaluate their progress during the problem-solving process.
2. Students solve addition problems by hopping on a number line. This activity allows students to learn about mathematical structure including the Commutative Property of Addition to solve problems.

Essential Question(s)

1. Can anyone explain how to solve the number story in a different way? Does your answer make sense? What other strategies can you use to solve your number story?
2. What patterns do you see when skip counting on a number grid by 2s? How can you use turn-around facts to help solve problems?

Learning Objectives

Children will be able to

1. Use diagrams and number models to represent and solve parts-and-total situations
2. Represent number stories with number models and solve them
3. Count a large collection of objects
4. Solve an open response problem about representing a number story
5. Discuss pictures and number models from open response problem and revise work

6. Count up and back on the number line to prepare for using it as a tool for adding and subtracting
7. Count up and back on the number line to add and subtract
8. Count up and back on the number line and use the number line to solve equations with the unknown number in various positions
9. Use the number grid to count and discuss patterns in the counts
10. Introduce frames-and-arrows diagrams and solve problems within them that involve counting, addition and subtraction
11. Find the arrow rule in frames-and-arrows problems to practice finding unknown numbers in addition and subtraction equations
12. Use calculators to extend the counting sequence

New Jersey Student Learning Standards

- **1.OA.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).
- **1.OA.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)
- **1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- **1.OA.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 $8 + 4 = 12$, ones knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).
- **1.OA.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 $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.*
- **1.NBT.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.
- **1.NBT.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.MD.1** Order three objects by length; compare the lengths of two objects indirectly using a third object.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Mental Math

- b. Math Message
 - c. Journal pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: Exploring counting, matching pairs and ordering by length
 - f. Open Response and Re-engagement Lesson: Birds in a Tree
 - g. Unit 3 Progress Check and Open Response Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *domino top-it, roll and total, high roller, penny-dice, subtraction bingo, bunny hop, rolling for 50, penny plate*
2. English Language Learners.
 - a. Use of visual representations such as the vocabulary picture cards, number grid and counters.
 - b. Repeat and restate number stories with words and actions.
 - c. Review vocabulary.
 3. Special education/504 students.
 - a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards
 4. Gifted and talented students
 - a. Use of activity cards
 - b. Expanding number stories with higher numbers
 - c. Matching larger pairs of numbers
 - d. Exploring negative number lines

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 4: Length and Addition Facts

(Weeks 15-18)

Enduring Understanding

1. In Unit 4, students are encouraged to solve problems more than one way. They check answers by using different methods.
2. Students use what they know about counting and operations to create a model for real-world data they collect.

Essential Question(s)

1. How do we use the relationship between addition and subtraction to solve facts quickly?
2. How do we measure lengths using nonstandard units?
3. How do we represent and interpret data?

Learning Objectives

Students will be able to:

1. Iterate length units to measure the lengths of objects.
2. Discuss length as a measurable attribute and compare the lengths of objects directly and indirectly.
3. Estimate and measure the lengths of objects.
4. Make an argument about which child made the best measurement; discuss and revise work.
5. Collect data and display it on a tally chart; create shapes with specified attributes using rubber bands on geoboards; build with and count base-10 blocks.
6. Create a tally chart and bar graph, compare the representations, answer questions about the data shown on each.
7. Learn about doubles as a strategy for adding and subtracting within 20
8. Record addition facts they know and use combinations of 10 as a strategy for adding and subtracting within 20.
9. Develop strategies for finding combinations of 10 to help them add and subtract within 20.
10. Apply properties of operations and other strategies to add three numbers.
11. Find numbers that are 10 more and 10 less than a given number to support their work toward using place-value understanding to add and subtract.
12. Demonstrate understanding through unit and cumulative assessments.

New Jersey Student Learning Standards

- **1.MD.1** Order three objects by length; compare the lengths of two objects indirectly using a third object.
- **1.MD.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.
- **1.MD.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.NBT.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.
- **1.NBT.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.OA.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).
- **1.OA.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.OA.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)

- **1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- **1.OA.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 $8 + 4 = 12$, ones knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Mental Math
 - b. Math Message
 - c. Journal pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: Geoboard Shapes with Defining Attributes; Building with Base-10 Blocks; Surveying the Class
 - f. Open Response: Measuring a Marker
 - g. Unit 4 Progress Check and Open Response Assessment, Cumulative Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *Domino Top-it*, *Roll and Record Doubles*, *High Roller*, *Fishing for 10*, *What's Your Way?*
2. English Language Learners.
 - a. Use of visual representations such as the vocabulary picture cards, number grid and counters.
 - b. Support children's acquisition of descriptive vocabulary by modeling using objects.
3. Special education/504 students.
 - a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards.
 - c. Replacing larger addends with smaller addends.
4. Gifted and talented students.
 - a. Extending the counting patterns by increasing the number of cards for top-it.
 - b. Expanding knowledge of doubles facts by including two-digit numbers.
 - c. Measuring with cubit and hand spans.

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 5: Place Value and Comparisons**(Weeks 19-23)**Enduring Understanding

1. In Unit 5, students will investigate place-value concepts for tens and ones. Students use place value to compare and add 2-digit numbers. Students are introduced to comparison symbols. Base-ten blocks, dimes and pennies are used to enhance student understanding.
2. Students use non-standard units to measure length of a path. Reasoning and attention to precision are needed for this task.

Essential Question(s)

1. How do I show that the two digits of a two-digit number represent amounts of tens and ones? How do I show comparisons among these numbers using $<$, $>$, and $=$.
2. How will I show measurement using non-standard forms of measurement.?

Learning Objectives

Students will be able to:

1. Use base-ten blocks to practice place-value concepts.
2. Use base-ten blocks and calculators to support place-value understanding.
3. Apply their understanding of the relationship between of tens and ones by exchanges pennies and dimes.
4. Review the meaning of the $=$ symbol and are introduced to the $>$ and $<$ relation symbols.
5. Determine whether addition and subtraction equations are true and make false equations true.
6. Apply place value understanding to write numbers up to and beyond 100 on number scrolls
7. Find the length of a crooked path using non-standard units.
8. Explore the relationships between tens and ones and explore the lengths of 2 objects.
9. Use number models and symbols to solve number stories.
10. Learn strategies for solving comparison number stories.
11. Use a variety of strategies to add and subtract 2 digit numbers.
12. Use tools to solve open response problems.
13. Demonstrate knowledge of skills taught in the unit.

New Jersey Student Learning Standards

- **1.MD.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 overlays.
- **1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones.

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

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to,:

1. Activities
 - a. Mental Math
 - b. Math Message
 - c. Journal pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: Exploring base-ten exchanges, lengths, and path measurement
 - f. Open Response: Adding Animal Weights
 - g. Unit 5 Progress Check and Open Response Assessment
 - h. Ongoing Assessments through Check Ins
 - i. Games: *The Digit Game, Penny-Dime Exchange, Top-It, Addition Top-It, Before and After, Base-10 Exchange, The Difference Game, Stop and Go*
2. English Language Learners.
 - a. To reinforce the meaning of “represent” and “stands for” vocabulary use base-ten blocks and have students point to the meaning of each term for given numbers.
3. Special education/504 students.
 - a. Use a number grid to support number readiness.
 - b. Allow extended use of base-10 blocks.
4. Gifted and talented students.
 - a. Base- 10 block challenge, students extend their understanding of place value exchanges with base-10 blocks.

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 6: Addition Fact Strategies**(Weeks 24-28)**Enduring Understanding

1. Unit 6 offers many opportunities for children to construct arguments and critique the reasoning of other and demonstrate their thinking and making sense of others' ideas, through verbal explanations. As children construct their arguments and explain their thinking others are asked to listen, ask questions, and explain their classmates' thinking in their own words.
2. Throughout Unit 6 children explore the relationship between addition facts and use what they notice to create shortcuts that help them develop fact fluency. Mathematically proficient students begin to notice repetition and patterns and use these to justify rules, create shortcuts and make generalizations.

Essential Question(s)

1. How did I get my answer? Do I agree/disagree with my partner's answer?
2. Do I notice any number patterns and repetition? Do the patterns I notice help me develop fact fluency?
3. Can I make a mathematical argument? Can I prove my answers?

Learning Objectives

Students will be able to:

1. Practice reading and displaying times on an hour hand only clock
2. Use tools, strategies and properties of operations to solve number stories with two or three addends
3. Determine whether number sentences are true or false and practice addition doubles and create shapes with given attributes
4. Use the near double strategy to solve other addition facts within 20
5. Solve facts within 20 and represent their solution strategies with pictures, words and symbols
6. Learn the making 10 strategy for adding and subtracting within 20
7. Learn how to use my reference book to find mathematical information that will be helpful for solving problems
8. Make sense of and solve a multi-step number story and discuss some solutions and revise their work
9. Use addition and subtraction facts to complete name collection boxes and extend their understanding of equivalence
10. Use base 10 blocks to solve place-value riddles
11. Apply their understanding of place value to make exchanges between pennies, dimes, and dollars

New Jersey Student Learning Standards

- **1.OA.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)

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

- **1.OA.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? $6=6$, $7=8-1$, $5+2=2+5$, $4+1=5+2$.

- **1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones.

- **1.NBT.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

- **1.NBT.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.3** Tell and write time in hours and half-hours using analog and digital clocks.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities
 - a. Mental Math
 - b. Math Message
 - c. Journal Pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: True and False, Doubles and Shapes
 - f. Open Response and Reengagement Lesson: Pencils for the Writing Club
 - g. Unit 6 Progress Check and Cumulative Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *Stop and Go*, *Roll and Record Doubles*, *Addition Top-It*, *Domino Top-It*, *Fishing for 10*, *Ten-Frame Top-It*, *The Difference Game*, *The Digit Game with 3-Digit Numbers*, *Penny-Dime-Dollar Exchange*, *Base-10 Exchange*
2. English Language Learners.
 - a. Physical response prompts to demonstrate key vocabulary (show me the hands, face, etc)

- b. Compare and contrast of two objects
 - c. Picture prompts,
 - d. Use of manipulatives
 - e. Provide sentence prompts for children to fill in their thinking
3. Special Education/504 Students.
 - a. Picture prompts
 - b. Small group work
 - c. Modification of journal pages
 - d. Use of clocks
 - e. Double ten frames
 - f. Base ten blocks
 - g. Attribute blocks and counters, to be determined by student and teacher
 4. Gifted and Talented Students.
 - a. Enrichment activity cards
 - b. Extending facts/patterns past 20

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 7: Subtraction Fact Strategies and Attributes of Shapes

(Weeks 29-33)

Enduring Understanding

1. In Unit 7, students will learn about the relationship between addition and subtraction. Children will generate fact families through their work with dominoes and Fact Triangles. They will learn to use the inverse relationship between addition and subtraction to solve problems.
2. Students will learn to generalize strategies to solve a variety of similar mathematical problems. Children will also learn how to find and make sense of repeated calculations. By finding the pattern, they will be able to notice the relationship between two numbers.

Essential Question(s)

1. How do we tell and write time?
2. How do we name and group shapes based on defining and non-defining attributes?
3. How can we apply properties of relationships between addition and subtraction?

Learning Objectives

Students will be able to:

1. Deepen their understanding of the relationship between addition and subtraction by learning about fact families
2. Use fact triangles to practice adding and subtracting within 20
3. Apply the think-addition strategy to doubles and combinations of 10 facts
4. Learn the counting-up and counting-back strategies for subtraction and compare the efficiency of various subtraction facts

5. Identify the attributes of attribute blocks and sort blocks by their attributes
6. Sort by attribute rules, explore whether shapes are divided equally, and practice addition and subtraction facts
7. Differentiate between defining and non-defining attributes of 2-dimensional shapes
8. Learn the “what’s my rule?” Routine and use it to practice finding unknown numbers in number sentences
9. Find a rule for a real-world situation and use it to solve a problem
10. Practice addition facts and find unknown numbers in number sentences in the “what’s my rule?” Routine
11. Tell time using digital and analog clocks

New Jersey Student Learning Standards

- **1.OA.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)
- **1.OA.4** Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. Add and subtract within 20.
- **1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on, making 10 (ex: $8+6=8+2+4=10+4=14$); decomposing a number leading to a ten (ex $13-4=13-3-1=10-1=9$); using the relationship between addition and subtraction (ex knowing that $8+4=12$, ones knows $12-8=4$); and creating equivalent but easier or known sums (ex adding $6+7$ by creating the known equivalent $6+6+1=12+1=13$).
- **1.OA.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 $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.*
- **1.MD.3** Tell and write time in hours and half-hours using analog and digital clocks.
- **1.G.1** Distinguish between defining attributes (e.g., triangles are close and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities

- a. Mental Math
- b. Math Message
- c. Journal Pages
- d. Writing/Reasoning Prompts
- e. Explorations: Attributes, Fractions, and *Salute!*
- f. Open Response and Reengagement Lesson: Desks and Chairs

- g. Unit 7 Progress Check and Open Response Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *Beat the Calculator, Subtraction Bingo, Salute!, Top-It with Subtraction, Roll and Record Doubles, Shaker Addition Top-It, The Difference Game, Stop and Go, Attribute Train, Penny-Dime-Dollar Exchange, What's Your Way, Tric-Trac, Time Match*
2. English language learners
- a. Use of visual representations such as the vocabulary picture cards, number grid and counters.
 - b. Support children's acquisition of descriptive vocabulary by modeling using objects.
3. Special education/504 students
- a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards.
 - c. Replacing larger addends with smaller addends.
4. Gifted and talented students
- a. Enrichment activity cards
 - b. Extending facts/patterns past 20
 - c. Children will play a version of *top-it* in which they find the difference between two number cards
 - d. Children can create their own "what's my rule?" Problems and solve for the unknown

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 8: Geometry

(Weeks 34-38)

Enduring Understanding

1. In Unit 8, children make sense of others' mathematical thinking. Students will construct informal arguments, tell how they know or why they think as they do, as well as listen to others' arguments, think about whether those arguments make sense, and ask questions.
2. Children continue to use clear mathematical language. They use precise language about specific defining attributes to contrast various shapes. Unit 8 also offers opportunities for children to clearly and precisely explain their thinking.

Essential Question(s)

1. How can you use place value understanding and properties of operations to add and subtract?
2. How can we represent and interpret data?

Learning Objectives

Students will be able to:

1. Construct 2-dimensional shapes and identify defining and non-defining attributes of those shapes
2. Divide shapes into two equal shares and discuss how to name the shapes
3. Divide shapes into four equal shares and name the shares; to compare the sizes of the shares to the number of equal shares
4. Use drawings to answer a question about sharing paper squares
5. Combine 2-dimensional shapes to create composite shapes; compose new shapes from the composite shapes
6. Identify defining attributes of 3-dimensional shapes; to combine 3-dimensional shapes to create composite shapes
7. Create composite shapes from 2- and 3- dimensional shapes; identify facts that can be solved with different fact strategies
8. Be introduced to half hours; tell and write time to the half hour
9. Create bar graphs; ask and answer questions about data shown in bar graphs
10. Review place-value patterns in the number grid and use them to solve number-grid puzzles
11. Use place value to mentally add and subtract 10 from a given number

New Jersey Student Learning Standards

- **1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on, making 10 (ex: $8+6=8+2+4=10+4=14$); decomposing a number leading to a ten (ex $13-4=13-3-1=10-1=9$); using the relationship between addition and subtraction (ex knowing that $8+4=12$, ones knows $12-8=4$); and creating equivalent but easier or known sums (ex adding $6+7$ by creating the known equivalent $6+6+1=12+1=13$).
- **1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones.
- **1.NBT.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.MD.3** Tell and write time in hours and half-hours using analog and digital clocks.
- **1.MD.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.G.1** Distinguish between defining attributes (e.g., triangles are close and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- **1.G.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. (Students do not need to learn formal names such as “right rectangular prism.”)

- **1.G.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 that decomposing into more equal shares creates smaller shares.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities
 - a. Mental Math
 - b. Math Message
 - c. Journal Pages
 - d. Writing/Reasoning Prompts
 - e. Explorations: Composition of Shapes and Addition Fact Strategies
 - f. Open Response and Reengagement Lesson: Sharing Paper Squares
 - g. Unit 8 Progress Check and Cumulative Assessment
 - h. Ongoing Assessment through Check Ins
 - i. Games: *I Spy*, *Time Match*, *Make My Design*, *Addition Top-It*, *Penny-Dime-Dollar Exchange*, *Before and After*
2. English Language Learners
 - a. Use of visual representations such as the vocabulary picture cards, number grid and counters.
 - b. Support children's acquisition of descriptive vocabulary by modeling using objects.
 - c. To review defining attributes by playing a guessing game with yes or no questions
3. Special education/504 students
 - a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards.
 - c. Replacing larger addends with smaller addends.
4. Gifted and talented students
 - a. Enrichment activity cards
 - b. Extending facts/patterns past 20
 - c. To further explore making composite shapes, children challenge their partners to solve shape challenges they create
 - d. Have children compare 3-dimensional shapes in a venn diagram
 - e. Have children order clocks that show a variety of times

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

Unit 9: Two-Digit Addition and Subtraction Review**(Weeks 39-43)**Enduring Understanding

1. In Unit 9, students are given opportunities to make sense of and solve problems in more than one way. They are encouraged to estimate answers before solving problems and to use the estimates as landmarks to reflect on their thinking and to check the reasonableness of their solutions.
2. Students focus on choosing appropriate tools and using those tools effectively.

Essential Question(s)

1. How can we measure lengths indirectly by iterating length units?
2. How can we represent and solve problems involving addition and subtraction?

Learning Objectives

Students will be able to:

1. Create rulers using paper clips as units of length; use the rulers to measure objects
2. Tell, model, and solve number stories with two and three addends
3. Find the total cost of three items and explain their strategies
4. Generate equivalent names for numbers in broken-calculator problems; to divide a rectangle into equal parts; to conduct a final facts inventory
5. Apply a variety of strategies to add and subtract 2-digit numbers
6. Addition and subtraction strategies to solve comparison number stories
7. Choose to use tools and strategies to solve addition and subtraction number stories and explain their choices
8. Use $<$, $>$, and $=$ to compare sums of prices
9. Review place value; to apply their understanding of place value to solve number-grid puzzles
10. Review defining attributes and names of 3-dimensional shapes; use 3-dimensional shapes to form composite shapes
11. Review dividing shapes into 2 and 4 equal shares, naming one share, and naming the whole

New Jersey Student Learning Standards

- **1.OA.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? $6=6$, $7=8-1$, $5+2=2+5$, $4+1=5+2$
- **1.NBT.2** Understand that the two digits of a two digit number represent amounts of tens and ones
- **1.NBT.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.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

- **1.NBT.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.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 overlays.

- **1.G.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. (Students do not need to learn formal names such as “right rectangular prism.”)

- **1.G.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.

Suggested Activities/Modifications

Below is a list of suggested activities, modifications, accommodations, and enrichment opportunities. This includes, but is not limited to:

1. Activities

- a. Mental Math
- b. Math Message
- c. Journal Pages
- d. Writing/Reasoning Prompts
- e. Explorations: Attributes, Fractions, and *Salute!*
- f. Open Response and Reengagement Lesson: Desks and Chairs
- g. Unit 9 Progress Check and Open Response Assessment
- h. Ongoing Assessment through Check Ins
- i. Games: *Beat the Calculator*, *Animal Weight Top-It*, *Tric-Trac*, *Stop and Go*, *Top-It*, *with School Store Cards*, *The Digit Game*, *Time Match*, *Make My Design*, *I Spy*

2. English Language Learners

- a. Use of visual representations such as the vocabulary picture cards, number grid and counters
- b. Support children’s acquisition of descriptive vocabulary by modeling using objects
- c. Use concrete objects to role play number stories told for Mental Math and Fluency

3. Special Education/504 Students
 - a. Modification of journal pages
 - b. Use of manipulatives, counters and number grid, and vocabulary picture cards
 - c. Replacing larger addends with smaller addends
 - d. Use base-ten blocks when adding 2-digit numbers
4. Gifted and Talented Students
 - a. Enrichment activity cards
 - b. Extending facts/patterns past 20
 - c. Children will complete challenge broken calculator problems

New Jersey Student Learning Standards – Standards 8, 9 and Career Readiness Practices

- See Technology & Career Readiness & 21st Century Skills Standards Curriculum Appendix

V. Course Materials (included, but not limited to)

- Textbook: Everyday Mathematics, McGraw Hill Education Copyright 2015
- Materials: Math Masters, Classroom Posters, Assessment Handbook, *Home Connection Handbook*, Student Math Journal: Volumes 1 and 2, Homelinks, *My Reference Book*, Activity Cards
- Manipulatives: attribute blocks, base-10 blocks, clock faces, connectors, counters, dice, dominoes, Everyday Math Decks, geoboards, number line, pattern blocks, pattern block template, money bills, coins, Quick Look Cards, rubber bands, spinners, straws, ten frames, thermometer
- Computer Programs: Exam View
- Internet Resources: ConnectED, eToolkit, ePresentations, Smart Notebook, Virtual Learning Community

VI. Assessments (included, but not limited to)

- Baseline Fact Mastery +,-
- Mid Year Fact Mastery +,-
- End of Year Fact Mastery +,-
- Unit 1-9 Progress Checks
- Odd Units- Open Response Assessment
- Even Units- Cumulative Assessments
- Ongoing Assessment Check Ins
- Writing/Reasoning Prompts

VII. Cross Curricular Aspects

- Literature Links can be found on unit materials page.
- Daily routines with weather and temperature connect to science standards.