Grade 1 Unit 4: Measurement, Time, Money, and Geometry

Content Area: **Math**
Course(s): **Math Grade 1**
Time Period: **MP4**
Length: **45**
Status: **Published**

NJSLS Math

MATH.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.
MATH.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
MATH.1.OA.C.6	Add and subtract within 20, demonstrating accuracy and efficiency 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).
MATH.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.
MATH.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:
MATH.1.M.A.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.
MATH.1.M.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.
MATH.1.M.B.3	Tell and write time in hours and half-hours using analog and digital clocks.
MATH.1.M.C.4	Know the comparative values of coins and all dollar bills (e.g., a dime is of greater value than a nickel). Use appropriate notation (e.g., 69¢, $10).
MATH.1.M.C.5	Use dollars in the solutions of problems up to $20. Find equivalent monetary values (e.g., a nickel is equivalent in value to five pennies). Show monetary values in multiple ways.
MATH.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.
MATH.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.
MATH.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.

Unit Focus

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Reason with shapes and their attributes.

Standards for Math Practice

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.

Critical Knowledge & Skills

NJSLS Math	Suggested Math Practices	Critical Knowledge and Skills
1.M.A.1 (**M**) Order three objects by length; compare the lengths of two objects indirectly by using a third object.	MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concepts: • Objects can be compared and ordered based on length. Students will be able to: • Compare the length of two objects. • Compare the length of two objects by using a third object as a measuring tool. • Order three objects by length. Learning Goal 1: • 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).
1.M.A.2 (**M**) 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.	MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concepts: • The length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Students will be able to: • Lay multiple copies of a shorter object (the length unit) end to end. • Use a shorter object to express the length of a longer object. Learning Goal 2: • Express the length of objects using whole number length units.
1.M.C.4 (**S**) Know the comparative values of coins and all dollar bills (e.g., a dime is of greater value than a nickel). Use appropriate notation (e.g., 69¢, $10).	MP.4 Model with mathematics MP.7 Look for and make use of structure	Concepts: • The relative values of coins and dollar bills. • Different coins and dollar bills have different values. Students will be able to: • Distinguish the values of various coins and dollar bills. • Compare the values of various coins and dollar bills. Learning Goal 3:

		• Identify and compare different coins and dollar bills based on their values.
1.NBT.A.1 (**M**) 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.	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concepts: • Number names and the count sequence up to 120. Students will be able to: • Count orally by ones up to 120. • Count up to 120 beginning at any number less than 120. • Read numerals up to 120. • Write numerals up to 120. • Represent a number of objects up to 120 with a written number. Learning Goal 4: • Count to 120 orally, read and write numerals, and write numerals to represent the number of objects (up to 120).

1.NBT.B.2 (**M**) Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. 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).	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concepts: • No new concepts introduced. Students will be able to: • Compose numbers to 90. • Decompose numbers to 90. • Identify the value of the number in the tens or ones place. Learning Goal 5: • Compose and decompose numbers to 90 to identify the value of the number in the tens and ones place.
1.M.B.3 (**A**) Tell and write time in hours and half-hours using analog and digital clocks.	MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concepts: • Time is represented on analog and on digital clocks. • Analog clocks have hands that indicate the time in hours and minutes. Students will be able to: • Tell and write time in hours using analog and digital clocks. • Tell and write time in half-hours using analog and digital clocks. • Use the term o'clock in reporting time to the hour. Learning Goal 6: • Tell and write time to the half-hour using the term o'clock and using digital notation (include both

		analog and digital clocks).
1.OA.C.5 (**M**) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concepts: • No new concepts introduced. Students will be able to: • Count on to add. • Relate counting on to addition. • Count back to subtract. • Relate counting back to subtraction. Learning Goal 7: Count on to add and count backwards to subtract to solve addition and subtraction problems within 20.
1.G.A.1 (**A**) 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.	MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concepts: • Defining attributes versus non defining attributes. Students will be able to: • Name attributes that define two-dimensional shapes (square, triangle, rectangle, regular hexagon). • Name attributes that do not define two-dimensional shapes. • Build and draw shapes when given defining attributes. Learning Goal 8: • Name the attributes of a given two-dimensional shape (square, triangle, rectangle, regular

		hexagon), distinguishing between defining and non-defining attributes. Learning Goal 9: • Build and draw shapes when given defining attributes.
1.G.A.2 (**A**) 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. (Clarification: Students do not need to learn formal names such as "right rectangular prism.")	MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concepts: • Shapes can be composed from other shapes (e.g. trapezoids can be composed from triangles). • New shapes can be composed from composite shapes. Students will be able to: • Create a composite shape using two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles). • Create a composite shape using three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders). • Compose new shapes from the composite shapes. Learning Goal 10: • 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.
1.OA.A.2 (**M**) 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.  Climate Change Example: Given a number of light bulb stickers, students may determine how many total stickers they and two partners have. With support, students may ask and answer questions about how turning off lights and unplugging electronics saves electricity. Students may then, with their partners, determine who saves the most electricity based on the number of light bulb stickers each has.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.	Concepts: • No new concepts introduced. Students are able to: • Use objects and drawings to represent word problems that call for less than or equal to 20. Learning Goal 11: • Solve addition word problems with three whole numbers with sums less than or equal to 20.
1.G.A.3 (**A**) 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.	MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.4 Model with mathematics. MP.7 Look for and make use of	Concepts: • Shapes can be partitioned into equal parts or shares. • Equal shares are named based on the number of shares that make the whole (e.g. halves, fourths, quarters). • Shares can be described based on their relation to the whole (e.g half of, fourth of, quarter of). • The whole can be described based on the number of shares.

	structure.	• Decomposing a whole into more equal shares creates smaller shares. Students will be able to: • Partition circles and rectangles into two or four equal shares. • Distinguish equal shares from those that are not equal. • Describe shares using the words halves, fourths, and quarters. • Describe the relationship between the whole and the share using the phrases half of, fourth of, and quarter of. • Describe the whole as two of, or four of the shares. • Decompose a whole into a greater number of equal shares and identify the new shares as smaller. Learning Goal 12: • 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.
1.M.C.5 (**S**) Use dollars in the solutions of problems up to $20. Find equivalent monetary values (e.g., a nickel is equivalent in	MP.2 Reason abstractly and quantitatively.	Concepts: • Monetary values can be

value to five pennies). Show monetary values in multiple ways. For example, show 25¢ as two dimes and one nickel, and as five nickels. Show $20 as two tens and as 20 ones.	MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	shown in multiple ways. Students will be able to: • Find equivalent values for different coins and bills. • Represent monetary values in multiple ways. Learning Goal 13: • Find equivalent values for different combinations of coins and bills. Learning Goal 14: • Represent monetary values in various ways by breaking down amounts into smaller denominations.
1.OA.C.6 (**M**) Add and subtract within 20, demonstrating accuracy and efficiency 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).	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.	Concepts: • Different strategies can be used to add and subtract. Students will be able to: • Add and subtract within 20, using the following strategies: ○ counting on ○ making ten ○ composing numbers ○ decomposing numbers leading to a ten ○ relationship between addition and subtraction ○ creating equivalent but easier or known

		sums • Fluently add or subtract whole numbers within 20. Learning Goal 15: • Add and subtract whole numbers within 20 using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc.

School/District Formative Assessment Plan

- Topic 11-1 through Topic 11-7 Quick Check (found in Savvas Realize).
- Topic 12-1 through Topic 12-4 Quick Check (found in Savvas Realize).
- Topic 13-1 through Topic 13-6 Quick Check (found in Savvas Realize).
- Topic 14-1 through Topic 14-9 Quick Check (found in Savvas Realize).
- Topic 15-1 through Topic 15-4 Quick Check (found in Savvas Realize).

School/District Summative Assessment Plan

- Topic 11 Assessment
- Topic 12 Assessment
- Topic 13 Assessment
- Topic 14 Assessment
- Topic 15 Assessment

Focus Mathematical Concepts

Pre-requisite skills

- Compare two objects that share a measurable attribute to see which object has “more of”/“less of” the attribute (K.M.A.2).
- Describe the difference between two objects that share the same measurable attribute (K.M.A.2).
- Objects have measurable attributes, such as length or weight (K.M.A.1).
- Describe measurable attributes of objects, such as length or weight. (K.M.A.1).
- Describe several measurable attributes of a single object (K.M.A.1).
- The name of a shape does not change when orientation and size change (K.G.A.2).
- Correctly name squares, circles, triangles, rectangles and hexagons of different sizes and orientations (K.G.A.2).
- Orientation and size do not change the shape (cubes, cones, cylinders and spheres) (K.G.A.2).
- Correctly name cubes, cones, cylinders, and spheres (K.G.A.2).
- Two-dimensional shapes are “flat” (lying in a plane) (K.G.A.3).
- Three-dimensional shapes are “solid” (K.G.A.3).
- Identify shapes as two-dimensional or three-dimensional (K.G.A.3).
- Describe the parts of two- and three dimensional shapes (e.g., number of sides, faces, vertices/ “corners”) (K.G.B.4).
- Compare by describing similarities, differences, parts, and other attributes of two- and three-dimensional shapes using informal language (K.G.B.4).
- Simple shapes can join to compose larger shapes (K.G.B.6).
- Compose simple shapes to form larger shapes (K.G.B.6).

Common Misconceptions

- Some students may view the measurement process as a procedural counting task. They might count the markings on a ruler rather than the spaces between (the unit of measure). Students need numerous experiences measuring lengths with student-made tapes or rulers with numbers in the center of the spaces.
- Students may think that a square that has been rotated so that the sides form 45-degree angles with the vertical diagonal is no longer a square but a diamond. They need to have experiences with shapes in different orientations. For example, in the building-shapes strategy above, ask students to orient the smaller shapes in different ways.
- Some students may think that the size of the equal shares is directly related to the number of equal

shares. For example, they think that fourths are larger than halves because there are four fourths in one whole and only two halves in one whole.

Required Fluencies for Grade 1

- 1.OA.C.6 Add and subtract within 10.

District/School Tasks

- Pick A Project (found in Savvas Realize)
- Performance Tasks (found in Savvas Realize)

District/School Primary and Supplementary Resources

- Envisions by Savvas
- STAR Renaissance

Instructional Best Practices/Open Educational Resources

Illustrative Mathematics

Desmos

Numeracy Tasks

Building Thinking Classrooms Tasks

Open Middle Math Tasks

Resources from Dr. Eric Milou

Career Awareness, Exploration, Preparation, and Training

WRK.9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.

Life Literacies & Key Skills

TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
TECH.9.4.2.IML.2	Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Interdisciplinary Connections

SCI.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.
SCI.1-LS3-1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
ELA.RI.CR.1.1	Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
ELA.W.WR.1.5	With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
ELA.W.SE.1.6	With guidance and support from adults, gather and select information from multiple sources to answer a question or write about a topic.