Content Area: Mathematics
Standard: 3. Data Analysis, Statistics, and Probability

Prepared Graduates:
➢ Solve problems and make decisions that depend on understanding, explaining, and quantifying the variability in data

Grade Level Expectation: First Grade

Concepts and skills students master:

1. Visual displays of information can used to answer questions

Evidence Outcomes	21st Century Skills and Readiness Competencies

Students can:
a. Represent and interpret data. (CCSS: 1.MD)
   i. Organize, represent, and interpret data with up to three categories. (CCSS: 1.MD.4)
  ii. 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. (CCSS: 1.MD.4)
	Inquiry Questions:
	  1. What kinds of questions generate data?
	  2. What questions can be answered by a data representation?

	Relevance and Application: 1. People use graphs and charts to communicate information and learn about a class or community such as the kinds of cars people drive, or favorite ice cream flavors of a class.

	Nature of Mathematics:
	  1. Mathematicians organize and explain random information
	  2. Mathematicians model with mathematics. (MP)

Content Area: Mathematics
Standard: 4. Shape, Dimension, and Geometric Relationships

Prepared Graduates:
➢ Understand quantity through estimation, precision, order of magnitude, and comparison. The reasonableness of answers relies on the ability to judge appropriateness, compare, estimate, and analyze error

Grade Level Expectation: First Grade

Concepts and skills students master:
2. Measurement is used to compare and order objects and events

Evidence Outcomes	21st Century Skills and Readiness Competencies

Students can:
a. Measure lengths indirectly and by iterating length units. (CCSS: 1.MD)
  i. Order three objects by length; compare the lengths of two objects indirectly by using a third object. (CCSS: 1.MD.1)
  ii. Express the length of an object as a whole number of length units.[1] (CCSS: 1.MD.2)
b. Tell and write time. (CCSS: 1.MD)
  i. Tell and write time in hours and half-hours using analog and digital clocks. (CCSS: 1.MD.3)
	Inquiry Questions:
	1. How can you tell when one thing is bigger than another?
	2. Why do we measure objects and time?
	3. How are length and time different? How are they the same?
	
	Relevance and Application:
	1. Time measurement is a means to organize and structure each day and our lives, and to describe tempo in music.
	2. Measurement helps to understand and describe the world such as comparing heights of friends, describing how heavy something is, or how much something holds.
	
	Nature of Mathematics:
	1. With only a few words, mathematicians use measurable attributes to describe countless objects.
	2. Mathematicians use appropriate tools strategically. (MP)
	3. Mathematicians attend to precision. (MP)

Content Area: Mathematics
Standard: 1. Number Sense, Properties, and Operations

Prepared Graduates:
- ➢ Apply transformation to numbers, shapes, functional representations, and data

Grade Level Expectation: First Grade

Concepts and skills students master:
2. Number relationships can be used to solve addition and subtraction problems

Evidence Outcomes	21st Century Skills and Readiness Competencies

Students can:
 a. Represent and solve problems involving addition and subtraction. (CCSS: 1.OA)
  i. Use addition and subtraction within 20 to solve word problems.[1] (CCSS: 1.OA.1)
  ii. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.[2] (CCSS: 1.OA.2)
	Inquiry Questions:
	 1. What is addition and how is it used?
	 2. What is subtraction and how is it used?
	 3. How are addition and subtraction related?

b. Apply properties of operations and the relationship between addition and subtraction. (CCSS: 1.OA)
  i. Apply properties of operations as strategies to add and subtract.[3] (CCSS: 1.OA.3)
  ii. Relate subtraction to unknown-addend problem.[4] (CCSS: 1.OA.4)
 c. Add and subtract within 20. (CCSS: 1.OA)
  i. Relate counting to addition and subtraction.[5] (CCSS: 1.OA.5)
  ii. Add and subtract within 20 using multiple strategies.[6] (CCSS: 1.OA.6)
  iii. Demonstrate fluency for addition and subtraction within 10. (CCSS: 1.OA.6)
	Relevance and Application:
	 1. Addition and subtraction are used to model real-world situations such as computing saving or spending, finding the number of days until a special day, or determining an amount needed to earn a reward.
	 2. Fluency with addition and subtraction facts helps to quickly find answers to important questions.

d. Use addition and subtraction equations to show number relationships. (CCSS: 1.OA)
  i. Use the equal sign to demonstrate equality in number relationships.[7] (CCSS: 1.OA.7)
  ii. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.[8] (CCSS: 1.OA.8)
	Nature of Mathematics:
	 1. Mathematicians use addition and subtraction to take numbers apart and put them back together in order to understand number relationships.
	 2. Mathematicians make sense of problems and persevere in solving them. (MP)
	 3. Mathematicians look for and make use of structure. (MP)

Standard: 1. Number Sense, Properties, and Operations
First Grade

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[1] 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. (CCSS: 1.OA.1)

[2] e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (CCSS: 1.OA.2)

[3] 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.). (CCSS: 1.OA.3)

[4] For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8. (CCSS: 1.OA.4)

[5] e.g., by counting on 2 to add 2. (CCSS: 1.OA.5)

[6] 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 $6 + 6 + 1 = 12 + 1 = 13$). (CCSS: 1.OA.6)

[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.* (CCSS: 1.OA.7)

[8] For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$. (CCSS: 1.OA.8)