MATHEMATICAL IDEAS & CONCEPTS:

- Continue to represent and solve problems involving addition and subtraction
- Continue to understand and apply properties of operations and the relationship between addition and subtraction
- Continue to add and subtract within 20; working towards computational fluency within 10
- Continue to use place value understanding and properties of operation to add and subtract
- Measure lengths indirectly and by iterating length units *new this quarter*
- Continue to represent and interpret data
- Continue to reason with shapes and their attributes
- Work with time *new this quarter*

ESSENTIAL QUESTIONS:

1. *How are addition and subtraction related?*
2. *How can I break-apart (decompose) numbers to help me add/subtract?*
3. *What does it mean to measure?*
4. *How can I ask and answer questions using charts and graphs?*
5. *How can defining attributes help me create and partition shapes?*

STANDARDS:

Aligned to Essential Questions; Big Idea/Concept Standard (★) with supporting standards (➔) connected below

Notes in gray font are from the AR Mathematics standards; RPS instructional pacing notes are in red font

EQ 1: How are addition and subtraction related?

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

- ➔ **1.OA.B.3** Apply properties of operations as strategies to add and subtract. *For example*: 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*) *Note: 1.OA.B.3 Students need not use formal terms for these properties.*
- ➔ **1.OA.B.4** Understand subtraction as an unknown-addend problem. *For example:* Subtract 10 - 8 by finding the number that makes 10 when added to 8 *new this quarter*

Standards associated with this essential standard continue on next page...

EQ 1: How are addition and subtraction related? continued…

★ **1.OA.C.6** Add and subtract within 20, demonstrating *computational fluency* for addition and subtraction within 10

Note: 1.OA.C.6 Computational fluency is demonstrating the method of student choice. Students should understand the strategy he/she selected and be able to explain how it can efficiently produce accurate answers. Q3 Focus: Students should have experiences using a variety of the strategies listed below to work within 20

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)
- 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.B.3** Apply properties of operations as strategies to add and subtract. *For example*: 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*) *Note: 1.OA.B.3 Students need not use formal terms for these properties.*

➔ **1.OA.B.4** Understand subtraction as an unknown-addend problem. *For example:* Subtract 10 - 8 by finding the number that makes 10 when added to 8 *new this quarter*

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

➔ **1.OA.D.8** Determine the unknown whole number in an addition or subtraction equation relating three *whole numbers* *For example:* Determine the unknown number that makes the equation true in each of the *equations* 8 + ? = 11 5 = __ - 3 and 6 + 6 = __ *not formally assessed until 4th quarter*

EQ 2: How can I break-apart (decompose) numbers to help me add/subtract?

★ **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:

- 10 can be thought of as a bundle of ten ones — called a "ten"
- The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones
- 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

★ **1.NBT.C.4** Add within 100 using concrete models or drawings, relate the strategy used to a written expression or equation, and be able to explain the reasoning *Q3 Expectation: Use concrete models or drawings when adding within 100 and relate the strategy used to a written expression or equation.*

Note: 1.NBT.C.4 Strategies should be based on place-value, properties of operations, and the relationship between addition and subtraction.

➔ **1.OA.B.3** Apply properties of operations as strategies to add and subtract. *For example*: 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*) *Note: 1.OA.B.3 Students need not use formal terms for these properties.*

Standards associated with this essential standard continue on next page…

EQ 2: How can I break-apart (decompose) numbers to help me add/subtract? continued…

★ **1.NBT.C.5** Mentally find 10 more or 10 less than a given two-digit number, without having to count *new this quarter*
Note: 1.NBT.C.5 Students should be able to explain the reasoning used.

★ **1.NBT.C.6** Subtract multiples of 10 from multiples of 10 (both in the range of 10-90) using concrete models or drawings, relate the strategy to a written method, and explain the reasoning used *Q3 Expectation: Use concrete models or drawings when subtracting multiples of 10 and relate the strategy used to a written expression or equation.*
Note: 1.NBT.C.6 Strategies should be based on place value, properties of operations, and the relationship between addition and subtraction. Differences should be zero or positive. This is the only NBT standard that refers to subtraction.

EQ 3: What does it mean to measure?

★ **1.MD.A.2** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps *new this quarter*
Note: 1.MD.A.2 Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps

➔ **1.MD.A.1** Order three objects by length; compare the lengths of two objects indirectly by using a third object

EQ 4: How can I ask and answer questions using charts and graphs?

★ **1.MD.C.6** *This standard directly connects to the year-long data collection for Science 1-ESS1-2 in making observations about the amount of daylight hours (recording sunrise/sunset and hours of daylight each day).*

- Organize, represent, and interpret data with up to three categories, using tally tables, picture graphs and bar graphs
- Ask and answer questions about the total number represented, how many in each category, and how many more or less are in one category than in another *Q3 focus: asking and answering questions about the information presented in the charts and graphs*

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

EQ 5: How can defining attributes help me create and partition shapes?

★ **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.* *Q3 focus: using defining attributes to create shapes and help partition shapes*

➔ **1.G.A.2** Compose two-dimensional shapes (e.g., rectangles, squares, trapezoids, triangles, half-circles, and quarter- circles) or three-dimensional shapes (e.g., cubes, right *rectangular prisms*, right circular cones, and right circular cylinders) to create a composite shape

Note: 1.G.A.2 Students do not need to learn formal names such as "right rectangular prism". *Q3 focus: compose two-dimensional and three-dimensional shapes.*

★ **1.G.A.3** *new this quarter*

- 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

➔ **1.MD.B.3** Tell and write time in hours and half-hours using analog and digital clocks *new this quarter*

Note: 1.MD.B.3 The intention of this standard is to continue the introduction of the concept with the goal of mastery by the end of third grade

Additional Standards:

➔ **1.NBT.A.1** *Students need to be able to count forwards beyond 120 (in order to understand crossing decade numbers) and backwards from 120.*

- 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.