Third Grade Math
Units of Instruction
2019-2020

ACHIEVING EXCELLENCE TOGETHER

Grade 3 Math

Priority Standards and Instructional Unit 1

3rd Grade Math
Unit: 1

**This unit is designed to around these practice standards: Students look at the numbers in a problem and consider which strategy they will use to solve the given problem (MP.2). For example, for the problem 405 - 381, a student notices these values are close to each other, so rather than take away 381, they find the difference. They count up to 400 (19) and add on 5 more to equal 24. For the problem 425 - 98, the student notices 98 is close to 100, so chooses to take away 100 and add 2 more back on to equal 327. Students share the strategy they used, why it works and why they chose it (MP.3).	
**_Priority Standards will be summatively assessed throughout Quarter 3. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students._	

Number and Operations in Base Ten	
3.NBT.2-Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction. **MP.2, MP.3**	Priority Standard
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	Supporting Standard
3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range of 10–90 using strategies based on place value and properties of operations.	Supporting Standard

Grade 3 Math

BOONE COUNTY SCHOOLS

ACHIEVING EXCELLENCE TOGETHER

Priority Standards and Instructional Unit 2

3rd Grade Math
Unit: 2

**This unit is designed to around these practice standards: Students recognize the numbers & symbols in an equation such as 5 x 8 = 40 are related to a context using groups or arrays (MP.2). For example, a student analyzes this equation and tells a story about walking 8 blocks round-trip to and from school each day, connecting to the equation by saying: 5 days x 8 blocks each day is 40 total blocks walked. To represent the problem, they show 5 jumps of 8 on an open number line or show five 8-unit long Cuisenaire Rods (MP.5). When reading story situations, students seek to make sense of the story and its quantities (MP.1). They do not just lift numbers out or use keywords. To help make sense of the problem, students decide to write an equation or use a number line. In other words they 'mathematize' the situation (MP.4). In missing value problems, students attend to what value is unknown and what operation is represented (MP. 6) & use this information to determine what value will result in both sides of the equations being equal (MP.7).

**Priority Standards will be summatively assessed throughout Quarter 1. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.

Operations and Algebraic Thinking

3.OA.1- Interpret and demonstrate products of whole numbers. **MP.2, MP.5**	Priority Standard
3.OA.2-Interpret and demonstrate whole-number quotients of whole numbers, where objects are partitioned into equal shares. **MP.2, MP.5**	Priority Standard

3.OA.3-Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays and measurement quantities, by using drawings and equations with a symbol for the unknown number to represent the problem.	Supporting Standard
3.OA.4-Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	Supporting Standard

Grade 3 Math

BOONE COUNTY SCHOOLS

ACHIEVING EXCELLENCE TOGETHER

Priority Standards and Instructional Unit 3

3rd Grade Math
Unit: 3

**This unit is designed to around these practice standards: Students use strategies beyond skip counting to solve multiplication problems. They decide how to use known facts to solve facts like 6 x 9. Students use strategies like Adding a Group, thinking 5 groups of 9 (45) plus one more group (54) and Subtracting a Group, thinking 9 x 6 and reasoning 10 groups of 6 (60) minus one group of 6 (54) (MP.7). Students explain their selected reasoning strategy and listen and critique other students' strategies, considering which strategies make sense and are efficient (MP.3). Students think about 84 ÷ 4 as, "How many sets of 4 can be made from 84 items?" or "How many in a group, if there 84 items and 4 groups?" and use this relationship to solve the problem (MP.2).

**Priority Standards will be summatively assessed throughout Quarter 2. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.

Operations and Algebraic Thinking

3.OA.6-Understand division as an unknown-factor problem. **MP.2**	Priority Standard
3.OA.5-Apply properties of operations as strategies to multiply and divide.	Supporting Standard

Grade 3 Math

Priority Standards and Instructional Unit 4

3rd Grade Math
Unit: 4

**This unit is designed to around these practice standards: By studying patterns and relationships in multiplication facts, students develop fluency for multiplication facts (MP.8). For example, students notice 4 x 6 is equivalent to 2 x 2 x 6 (doubling strategy). They know 9 facts can be found by thinking of the other factor x 10 and subtracting one group. For example, recognizing 9 x 8 is equivalent to 10 x 8 – 8. For each fact, the student thinks, "What reasoning strategy can I use that is more efficient than skip counting?" (MP.2).

**Priority Standards will be summatively assessed throughout Quarter 2. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.

Operations and Algebraic Thinking

|	
3.OA.7-Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations **MP.2**	Priority Standard

Grade 3 Math

Priority Standards and Instructional Unit 5

3rd Grade Math
Unit: 5

**This unit is designed to around these practice standards: Given a non-straightforward story situation about gathering apples and sharing them among 8 families, students decide on ways to make sense of the problem (MP.1). One student decides to use a bar diagram to make sense of the situation and then use the bar diagram to write equations and solve the problem (MP.4). Maggie was picking apples from her three apple trees. She picked some from the first tree and realized she should count the rest of what she was picking. She picked 24 apples from the second tree and 40 apples from the third tree. She had enough apples to give 10 to each of eight families. How many apples did she pick from the first tree?

a	24	40
10 x 8 = 80 total apples		
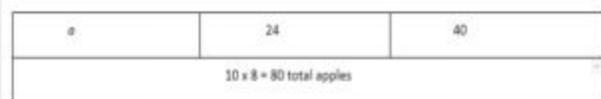
$a + 24 + 40$ = total apples and 10 x 8 = total apples. There are 80 apples total.

$a + 64 = 80$

$a = 16$

**Priority Standards will be summatively assessed throughout Quarter 1. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.

Operations and Algebraic Thinking

3.OA.8 Use various strategies to solve two-step word problems using the four operations (involving only whole numbers with whole number answers). Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Priority Standard

3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. **MP.3, MP.8**	

Grade 3 Math

Priority Standards and Instructional Unit 6

3rd Grade Math
Unit: 6

**This unit is designed to around these practice standards: Students use the number line to reason about the relative size of a fraction (MP.4). They locate 5/6 on a number line by accurately partitioning the line into 6 equal-length segments. They explain that 5/6 means five segments that are each one-sixth of a unit in length, for example counting, "One-sixth, two-sixths, three-sixths, four-sixths, five-sixths." (MP.7). As they partition the line in other ways, they recognize three-sixths is half of the distance to 1 whole, as is 2/4 , 1/2 , and 4/8 , and reason these fractions are equivalent (MP.2). Similarly, they can generate other illustrations or justifications to explain why two fractions are equivalent or not (MP.3).

**Priority Standards will be summatively assessed throughout Quarter 3. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.

Number and Operations Fractions

3.NF.1-Understand a fraction 1 b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a b as the quantity formed by a parts of size 1 b. **MP.2, MP.7**	Priority Standard

3.NF.2-Understand a fraction as a number on the number line;
represent fractions on a number line.
    a. Represent a fraction 1/b (unit fraction) on a number line by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts.
        ○ recognize each part has size 1/b
	Priority Standard

○ a unit fraction, 1/*b* is located 1/*b* of a whole unit from 0 on the number line. **b.** Represent a non-unit fraction *a*/*b* on a number line by marking off lengths of 1/*b* (unit fractions) from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the non-unit fraction *a*/*b* on the number line. **MP.4**	

3.NF.3-Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.
   a. Understand two fractions as equivalent (equal) if they are the same size, or same point on a number line.
   b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent through writing or drawing.
   c. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.
   d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions.
MP.2, MP.3
	Priority Standard

Grade 3 Math

BOONE COUNTY SCHOOLS

ACHIEVING EXCELLENCE TOGETHER

Priority Standards and Instructional Unit 7

3rd Grade Math
Unit: 7

**This unit is designed to around these practice standards: Students solve story situations using a model to support their reasoning (MP.4). For example, a student solves a task such as: you try to run for 15 minutes without stopping. When you look at the clock, the time is 2:52. What time will it say when you have reached 15 minutes? On an open number line, they show a jump from 2:52 to 3:00 as 8 minutes and then jump 7 minutes more to 3:07. Students estimate and then measure objects using standard units. For example, how many grams might balance with a selected item (MP.6)

**_Priority Standards will be summatively assessed throughout Quarter 3. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students._

Measurement and Data

3.MD.1-Tell and write time to the nearest minute and measure elapsed time intervals in minutes. Solve word problems involving addition and subtraction of time intervals within and across the hour in minutes. **MP.4, MP.6, MP.1. MP.4**	Priority Standard

3.MD.2-Measure and solve problems involving mass and liquid volume.
    a. Measure and estimate masses and liquid volumes of objects using standard units of grams (g), kilograms (kg) and liters (L).
    b. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.
	Supporting Standard

Grade 3 Math

BOONE COUNTY SCHOOLS

ACHIEVING EXCELLENCE TOGETHER

Priority Standards and Instructional Unit 8

3rd Grade Math
Unit: 8

**This unit is designed to around these practice standards: Students understand the purpose of creating a graph is to make sense of data related to a question (MP.1). They look at the data they have collected and decide on how to set up a graph to best communicate the data (MP.6). Students determine if the scale on a dot plot should be in whole numbers, halves or fourths, based on the data gathered. For example, if they measured the length of each person's pencil to the nearest fourth inch, the related dot plot would be created using fourths (MP.6).	
***Priority Standards will be summatively assessed throughout Quarter 3. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.*	

Measurement and Data	

3.MD.3-Investigate questions involving categorical data.
   a. Identify a statistical question focused on categorical data and gather data;
   b. Create a scaled pictograph and a scaled bar graph to represent a data set (using technology or by hand);
   c. Make observations from the graph about the question posed, including "how many more" and "how many less" questions
MP.3, MP.5, MP.6
	Priority Standard

3.MD.4-Investigate questions involving numerical data.
   a. Identify a statistical question focused on numerical data;
   b. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.
	Supporting Standard

c. Show the data by making a dot plot where the horizontal scale is marked off in appropriate units – whole numbers, halves, or quarters.

d. Make observations from the graph about the question posed, including questions about the shape of the data and compare responses.

Grade 3 Math

Priority Standards and Instructional Unit 9

3rd Grade Math
Unit: 9

**This unit is designed to around these practice standards: Students use 1 inch color tiles to cover a rectangle, understanding that color tile as a square inch (MP.5). As students place the tiles in repeated rows to fill the rectangle, they notice each row has the same number of tiles and the number of tiles that will fill a rectangle can be written as [number of tiles in one row] x [number of rows] (MP.8). They solve story problems that sometimes have the area as the unknown and sometimes have the number of rows or columns as the unknown and use their knowledge of area to solve the problem (MP.1).

**_Priority Standards will be summatively assessed throughout Quarter 2. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students._

Measurement and Data

3.MD.5-Recognize area as an attribute of plane figures and understand concepts of area measurement. **MP.5**	Priority Standard
3.MD.6-Measure areas by counting unit squares (square cm, square m, square in, square ft. and improvised units). **MP.5, MP.6**	Priority Standard
3.MD.7-Relate area to the operations of multiplication and addition. **a.** Find the area of a rectangle with whole-number side lengths by tiling it and show the area is the same as would be found by	Priority Standard

multiplying the side lengths.

b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning.

c. Use tiling to show in a concrete case the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning.

d. Recognize area as additive. Find areas of figures that can be decomposed into non-overlapping rectangles by adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

MP.1, MP.8

Grade 3 Math

Priority Standards and Instructional Unit 10

3rd Grade Math
Unit: 10

**This unit is designed to around these practice standards: Students recognize perimeter is a measure of length and see perimeters of polygons as a collection of side lengths added together to form the perimeter (MP.1). Therefore, they see if a side length is missing, it is like a missing addend problem and write an equation or draw a bar diagram to solve for the missing value (MP.4). Students recognize they can use a given perimeter (such as 16 inches) and form different rectangles (such as 4 x 4, 3 x 5, 2 x 6, 1 x 7) and that these rectangles have different areas (MP.1).

***Priority Standards will be summatively assessed throughout Quarter 3. All supporting standards are to be formatively assessed, driving reteaching and instructional adjustments to meet the needs of all students.*

Measurement and Data

3.MD.8-Solve real world and mathematical problems involving perimeters of polygons. a. Find the perimeter given the side lengths of a polygon. b. Find an unknown side length, given the perimeter and some lengths. c. Draw rectangles with the same perimeter and different areas or with the same area and different perimeters. **MP.1, MP.4**	Priority Standard