CPSD: Grade 3 Mathematics						
Module 1 Properties of multiplication and division and solving problems with units of 2-5 and 10	Module 2 Place value and problem solving with units of measure	Module 3 Multiplication and division with units of 0, 1, 6-9, and multiples of 10	Module 4 Multiplication and area	Module 5 Fractions as numbers on the number line	Module 6 Collecting and displaying data	Module 7 Geometry and measurement word problems
Apx. 30 days	Apx. 25 days	Apx. 25 days	Apx. 20 days	Apx. 25 days	Apx. 10 days	25 days
3.OA.A.1 3.OA.A.2 3.OA.A.3 3.OA.A.4 3.OA.B.5 3.OA.B.6 3.OA.C.7 3.OA.D.8	3.NBT.A.1 3.NBT.A.2 3.MD.A.1 3.MD.A.2 3.NBT.A.5	3.OA.A.3 3.OA.A.4 3.OA.B.5 3.OA.C.7 3.OA.D.8 3.OA.D.9 3.NBT.A.3	3.MD.C.5 3.MD.C.6 3.MD.C.7 3.OA.A.3	3.NF.A.1 3.NF.A.2 3.NF.A.3 3.G.A.2	3.MD.B.3 3.MD.B.4	3.MD.B.4 3.MD.D.8 3.G.A.1
Apx. 21 lessons	Apx. 19 lessons	Apx. 19 lessons	Apx. 14 lessons	Apx. 20 lessons	Apx. 8 lessons	Apx. 21 lessons

*Power standards are highlighted.

Module 1	Properties of multiplication and division and solving problems with units of 2-5 and 10	**Grade Level**	3	**Dates**	Approximately 30 days

CPSD Power Standards and Learning Indicators

- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and *equations* with a symbol for the unknown number to represent the problem).
    - I can solve word problems by using multiplication and division.
    - I can write an equation to show a multiplication or division problem.
    - I can use a symbol to show an unknown number in a multiplication or division equation.
- 3.OA.C.7 Using *computational fluency*, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one know 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, automatically recall all *products* of two one-digit numbers.Note: *Computational fluency* is defined as a student's ability to efficiently and accurately solve a problem with some degree of flexibility with their strategies.
    - I can quickly multiply and divide within 100.
    - I can recall multiplication facts (with products up to 100).
- 3.OA.D.8 Solve two-step word problems using the four operations, and be able to: Represent these problems using *equations* with a letter standing for unknown quantity and assess the reasonableness of answers using mental computation and estimation strategies including rounding.
    - I can solve two-step word problems using the four operations.
    - I can decide if my answer to a problem is reasonable.
    - I can use a symbol to show an unknown number in an equation.

Additional Arkansas Standards

- 3.OA.A.1 Interpret *products* of *whole numbers* (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each). For example: Describe a context in which a total number of objects can be expressed as 5 × 7.
- 3.OA.A.2 Interpret whole-number *quotients* of *whole numbers* (e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each). For example: Describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
- 3.OA.A.4 Interpret whole-number *quotients* of *whole numbers* (e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each). For example: Describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide. For example: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known (*Commutative property of multiplication*). 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30 (Associative property of multiplication). Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56 (Distributive property). *Note: Students are not required to use formal terms for these properties*
- 3.OA.B.6 Understand division as an unknown-factor problem. For example: Find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.

Module 2	Place value and problem solving with units of measure	**Grade Level**	3	**Dates**	Approximately 25 days

CPSD Power Standards and Learning Indicators

- 3.NBT.A.2 Using *computational fluency*, add and subtract within 1000 using strategies and *algorithms* based on *place value*, properties of operations, and the relationship between addition and subtraction. Note: *Computational fluency* is defined as a student's ability to efficiently and accurately solve a problem with some degree of flexibility with their strategies
    - I can solve addition and subtraction problems (using an algorithm and other strategies).
- 3.MD.A.1 Tell time using the terms quarter and half as related to the hour (e.g., quarter-past 3:00, half-past 4:00, and quarter till 3:00). Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., by representing the problem on a *number line diagram*).
    - I can tell and write the time to the nearest minute using different clocks.
    - I can use a.m. and p.m. correctly when telling or writing the time.
    - I can use the words quarter and half correctly when telling or writing the time.
    - I can use what I know about hours and minutes to solve problems. (elapsed time)
- 3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units such as: grams (g), kilograms (kg), liters (l), gallons (gal), quarts (qt), pints (pt), and cups (c). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units (e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem).
    - I can estimate and measure liquid volume using appropriate units.
    - I can estimate and measure masses of objects using appropriate units.
    - I can use what I know about measuring mass and volume to solve problems.
- 3.NBT.A.5 Read and write numbers to 10,000 using base-ten numerals, number names, and *expanded form(*s). For example: Using base-ten numerals "standard form" (347). Number name form (three-hundred forty seven). *Expanded form*(s) (300 + 40 + 7 = 3 × 100 + 4 × 10 + 7 × 1).
    - I can read and write numbers (up to 10,000) in standard form (using base-ten numerals).
    - I can read and write numbers (up to 10,000) in expanded form.
    - I can read and write numbers (up to 10,000) in written form (or number-name form).

Vocabulary/Terminology to note:

- **Continuous**: "time is continuous" means "time keeps going, does not stop, has no beginning or end"
- **Gram**, **kilogram**: 1,000 grams = 1 kilogram
- **Volume (capacity)**: amount (number of liters, milliliters, etc.) that a container holds
- **Liter**, **milliliter**: 1 liter = 1,000 milliliters
- **Rounding to the nearest 10**: to replace n by the multiple of 10 (0, 10, 20, etc.) which is closest to n
- **Rounding to the nearest 100**: to replace n by the multiple of 100 (0, 100, 200, etc.) which is closest to n

Additional Arkansas Standards

- 3.NBT.A.1 Use *place value* understanding to round *whole numbers* to the nearest 10 or 100.

Module 3	Multiplication and division with units of 0, 1, 6-9, and multiples of 10	**Grade Level**	3	**Dates**	Approximately 25 days

CPSD Power Standards and Learning Indicators

- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and *equations* with a symbol for the unknown number to represent the problem).
    - I can solve word problems by using multiplication and division.
    - I can write an equation to show a multiplication or division problem.
    - I can use a symbol to show an unknown number in a multiplication or division equation.
- 3.OA.C.7 Using *computational fluency*, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one know 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, automatically recall all *products* of two one-digit numbers.Note: *Computational fluency* is defined as a student's ability to efficiently and accurately solve a problem with some degree of flexibility with their strategies.
    - I can quickly multiply and divide within 100.
    - I can recall multiplication facts (with products up to 100).
- 3.OA.D.8 Solve two-step word problems using the four operations, and be able to: Represent these problems using *equations* with a letter standing for unknown quantity and assess the reasonableness of answers using mental computation and estimation strategies including rounding.
    - I can solve two-step word problems using the four operations.
    - I can decide if my answer to a problem is reasonable.
    - I can use a symbol to show an unknown number in an equation.

Additional Arkansas Standards

- 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three *whole numbers.* For example: Determine the unknown number that makes the equation true in each of the *equations* 8 × ? = 48 and 5 = _ ÷ 3 and 6 × 6 = ?
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide. For example: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known (*Commutative property of multiplication*). 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30 (Associative property of multiplication). Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56 (Distributive property). *Note: Students are not required to use formal terms for these properties.*
- 3.OA.D.9 Identify arithmetic patterns (including, but not limited to, patterns in the addition table or multiplication table), and explain them using properties of operations. For example: Note that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
- 3.NBT.A.3 Multiply one-digit *whole numbers* by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on *place value* and properties of operations

Module 4	Multiplication and Area	**Grade Level**	3	**Dates**	Approximately 20 days

CPSD Power Standards and Learning Indicators

- 3.MD.C.7 Relate area to the operations of multiplication and addition: Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.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. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the *sum* of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
    - I can find the area of a rectangle (by using tiles and by multiplying the lengths of the sides) using the correct square units.
    - I can use an area model to show the distributive property.
    - I can find the area of rectilinear figures by breaking them down into rectangles and adding the areas of those rectangles together.
- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and *equations* with a symbol for the unknown number to represent the problem).
    - I can solve word problems by using multiplication and division.
    - I can write an equation to show a multiplication or division problem.
    - I can use a symbol to show an unknown number in a multiplication or division equation.

Additional Arkansas Standards

- 3.MD.C.5 Recognize area as an *attribute* of plane figures and understand concepts of area measurement: A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.A plane figure, which can be covered without gaps or overlaps by n unit squares, is said to have an area of n square units.
- 3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

Module 5	Fractions as numbers on the number line	**Grade Level**	3	**Dates**	Approximately 25 days

CPSD Power Standards and Learning Indicators

- 3.NF.A.1 Understand a *fraction* 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts. For example: *Unit fractions* are *fractions* with a *numerator* of 1 derived from a whole partitioned into equal parts and having 1 of those equal parts (1/4 is 1 part of 4 equal parts). Understand a *fraction a*/*b* as the quantity formed by *a* parts of size 1/*b.* For example: *Unit fractions* can be joined together to make non-unit fractions (¼ + ¼ + ¼ = ¾).
  - I can create a fraction by breaking down a whole number into equal parts.
  - I can break apart a fraction into a unit fraction. (Example: ⅜= ⅛ + ⅛ + ⅛)
  - I can join together fractions to make non-unit fractions. (Example: ¼ + ¼ + ¼ = ¾)
- 3.NF.A.2 Understand a *fraction* as a number on the number line; represent *fractions* on a *number line diagram.* Represent a *fraction* 1/*b* on a *number line diagram* by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. Represent a *fraction a*/*b* on a *number line diagram* by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.
  - I can represent fractions on a number line.
  - I can create a number line with endpoints of 0 and 1 and mark off lengths to represent fractions.
- 3.NF.A.3 Explain equivalence of *fractions* in special cases and compare *fractions* by reasoning about their size:Understand two *fractions* as equivalent (equal) if they are the same size or the same point on a number line; Recognize and generate simple equivalent *fractions* (e.g., 1/2 = 2/4, 4/6 = 2/3); Explain why the *fractions* are equivalent (e.g., by using a *visual fraction model*); Express *whole numbers* as *fractions* and recognize *fractions* that are equivalent to *whole numbers* (e.g., Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a *number line diagram*). 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 symbols (>, =, <) and justify the conclusions (e.g., by using a *visual fraction model*)
  - I can determine if two fractions are equivalent (e.g. if they are the same size using a visual model or at the same point on a number line)
  - I can find equivalent fractions.
  - I can name whole numbers as fractions. (e.g. 3=3/1 or 4/4 = 1)
  - I can compare two fractions using symbols such as <, >, and =.
  - I can recognize that I can only compare fractions when wholes are the same size.
    - With this learning indicator, students should only be held to comparing fractions with the same numerators or denominators.

Additional Arkansas Standards

- 3.G.A.2 Partition shapes into parts with equal areas; Express the area of each part as a *unit fraction* of the whole. For example: Partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.

Module 6	Collecting and Displaying Data	**Grade Level**	3	**Dates**	Approximately 10 days

CPSD Power Standards and Learning Indicators

Note: This unit connects to the Science power standard: *3ESS2-1 Weather and Climate*: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

Additional Arkansas Standards

- 3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories (e.g., Draw a bar graph in which each square in the bar graph might represent 5 pets); Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled picture graphs and scaled bar graphs.
- 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a *line plot*, where the horizontal scale is marked off in appropriate units— *whole numbers*, halves, or quarters.

Vocabulary/Terminology to note:

- Bar graph - a graph generated from categorical data with bars to represent a quantity
- Data - information
- Fraction - a numerical quantity that is not a whole number
- Line Plot - display of data on a horizontal line
- Picture Graph - graph generated from categorical data with graphics to represent a quantity
- Scale - a number line used to indicate the various quantities represented in a bar graph
- Survey - collecting data by asking a question and recording responses

Module 7	Geometry and measurement word problems	Grade Level	3	Dates	Approximately 25 days

CPSD Power Standards and Learning Indicators

- 3.MD.D.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
    - I can find the perimeter of polygons to solve problems.
    - I can determine the length of a side of a polygon when I know the perimeter.
    - I can find rectangles with the same perimeter and different areas.
    - I can find rectangles with the same area and different perimeters.

Additional Arkansas Standards

- 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a *line plot*, where the horizontal scale is marked off in appropriate units— *whole numbers*, halves, or quarters.
- 3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share *attributes* (e.g., having four sides) and that the shared *attributes* can define a larger category (e.g., quadrilaterals).Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories

Vocabulary/Terminology to note:

- Trapezoids will be defined to be a quadrilateral with at least one pair of opposite sides parallel; therefore, all parallelograms are trapezoids.
- **Polygon**: closed shape (no gap or overlap) with straight sides
    - **Regular Polygon**: polygon with all equal sides and all equal angles
- **Triangle**: polygon with three sides
- **Quadrilateral**: polygon with four sides
    - **Trapezoid**: quadrilateral with *at least one* pair of parallel sides
    - **Parallelogram**: quadrilateral with *two* pairs of parallel sides
    - **Rectangle**: quadrilateral with four right angles (special parallelogram)
    - **Rhombus**: quadrilateral with four equal sides (special parallelogram)
    - **Square**: quadrilateral with four equal sides and four right angles (rhombus and rectangle)
- **Pentagon**: polygon with five sides
- **Hexagon**: polygon with six sides
- **Octagon**: polygon with eight sides
- **Decagon**: polygon with ten sides
- **Perimeter**: total length around a shape