

# Mathematics Grade 3

| CCCs  | FKSAs  | Essential Understandings  |
|---|--|---|
| <u>3.NO.2d3</u> Solve multiplication problems with neither number greater than 5 (3.OA.1)   | Ability to solve multiplication problems (e.g., using models or repeated addition).  | Create an array of sets (e.g., 3 rows of 2)   |
| <u>3.NO.2e1</u> Solve or solve and check one or two-step word problems requiring addition, subtraction or multiplication with answers up to 100. (3.OA.8) | Ability to solve and check one- or two-step word problems requiring addition, subtraction or multiplication with answers up to 100.                              | Combine (+), decompose (-), and multiply (x) with concrete objects; use counting to get the answers -Match the action of combining with vocabulary (i.e., in all; altogether) or the action of decomposing with vocabulary (i.e., have left; take away) in a word problem |
| <u>3.SE.1g1</u> Use =, <, or > to compare 2 fractions with the same numerator or denominator (use symbols to show quantitative relationships). (3.NF.3d)  | Ability to use =, <, or > to compare 2 fractions about fractions with the same denominator.  | Concrete representation of a fractional part of a whole as greater than, less than, equal to another.   |
| <u>3.NO.2c1</u> Solve multi-step addition and subtraction problems up to 100. (3. NBT.2)  | Ability to determine and perform the appropriate operation necessary to solve problems that require the use of addition or subtraction of up to 3 digit numbers. | Combine (+) or decompose (-) with concrete objects; use counting to get the answers.  |
| <u>3.DPS.1g1</u> Collect data, organize into picture or bar graph. (3.MD.02.3)  | Ability to collect data and display the data in a picture graph (pictogram) or bar graph.  | Organize data into a graph using objects (may have number symbols).   |
| <u>3.NO.1j3</u> Use place value to round to the nearest 10 or 100. (3. NBT.1)   | Ability to round a whole number to the nearest tens place.   | Identify ones or tens in bundled sets - Similar/different with concrete representations (i.e., is this set of manipulatives (8 ones) closer to this set (a  |

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| <u>3.NO.1I3</u> Identify the fraction that matches the representation (rectangles and circles; halves, fourths, and thirds, eighths). (3.NF.1) | Ability to identify the fraction that matches the representation.    | ten) or this set (a one)).<br>Identify part and whole when item is divided<br>-Count the number of the parts selected (3 of the 4 parts; have fraction present but not required to read $\frac{3}{4}$ ). |
| <u>3.GM.1i1</u> Partition rectangles into equal parts with equal areas. (3.G.2)  | Ability to partition a rectangle into equal parts with equal area.   | Concept of equal parts; Partitioning with concrete objects; Find the rectangle that is the same or match two congruent rectangles.   |
| <u>3.ME.1d2</u> Measure area of rectangular figures by counting squares. (3.MD.6)  | Ability to measure the area of rectangular figures.                  | Ability to identify the area of a rectangular figure.  |
| <u>3.PRF.2d1</u> Identify multiplication patterns in a real world setting. (3.OA.9)  | Ability to identify multiplication patterns in a real world setting. | Concrete understanding of a pattern as a set that repeats regularly or grows according to a rule; Ability to identify a pattern that grows (able to show a pattern) (shapes, symbols, objects).          |

# Mathematics Grade 4

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| <u>4.NO.1j5</u> Use place value to round to any place (i.e., ones, tens, hundreds, thousands). (4.NBT.3)  | Ability to round a whole number to any place (i.e., ones, tens, hundreds, and thousands).   | Identify ones, tens, hundreds in bundled sets - Similar/different with concrete representations (i.e., is this set of manipulatives (8 ones) closer to this set (a ten) or this set (a one)?  |
| <u>4.NO.2d7</u> Determine how many objects go into each group when given the total number of objects and groups where the number in each group or number of groups is not > 10. (4.OA.01.2) | Ability to determine the number of objects in each group when given the total number of objects and the number of groups.             | Create an array of objects given a specific number of rows and the total number, place one object in each group/row at a time.  |
| <u>4.SE.1g2</u> Use =, <, or > to compare 2 fractions (fractions with a denominator of 10 or less). (4.NF.2)  | Ability to use >, <, or = to compare 2 fractions.   | Concrete representation of a fractional part of a whole as greater than, less than, equal to another.   |
| <u>4.NO.2e2</u> Solve or solve and check one or two step word problems requiring addition, subtraction or multiplication with answers up to 100. (4.OA.3)                                   | Ability to solve and check one or two step word problems requiring addition, subtraction or multiplication with answers up to 100.    | Select the representation of manipulatives on a graphic organizer to show addition/multiplication equation. Match to same for representations of equations with equations provided (may be different objects but same configuration). |
| <u>4.PRF.1e3</u> Solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a graph or word problem. (4.OA.2)                               | Ability to solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a word problem. | Identify visual multiplicative comparisons (e.g., which shows two times as many tiles as this set?)   |
| <u>4.DPS.1g3</u> Collect data, organize in graph  | Ability to collect data and display the data  | Identify data set based on a single attribute (e.g,   |

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| (e.g. picture graph, line plot, bar graph).<br>(4.MD.02.4)  | in a picture graph (i.e., pictogram), bar graph, or line plot.   | pencils vs. markers); identify data set with more or less (e.g., this bar represents a set with more); organize the data into a graph using objects (may have number symbols).   |
| <u>4.NO.1m1</u> Determine equivalent fractions.<br>(3.NF.01.3)  | Ability to determine if two or more fractions (or their representations) are equivalent.                         | Identify two fraction representations that are identical (two pies showing $\frac{2}{3}$ ) – Equivalency (what is and what is not equivalent; this may begin with numbers/sets of objects: e.g., $3=3$ ) – Concept of fraction and decimal (part to whole) – Identify two fraction representations that are identical (two pies showing $\frac{2}{3}$ ). |
| <u>4.ME.1g2</u> Solve word problems using perimeter and area where changes occur to the dimensions of a figure. (4.MD.01.2) | Ability to solve word problems involving perimeter when the dimensions of the figure in the word problem change. | Identify the perimeter; identify the area; show each when size of figure changes.  |
| <u>4GM.1h2</u> Classify two-dimensional shapes based on attributes (# of angles). (4.G.01.2)                                | Ability to classify two-dimensional shapes based on their attributes.  | Identify attributes within a 2-dimensional figure (e.g., rectangles have sides – student identifies sides of rectangle—and angles – student identifies angles in rectangle).   |
| <u>4.NO.1n2</u> Compare up to 2 given fractions that have different denominators. (4.NF.2)                                  | Ability to compare two fractions that have different denominators.   | Differentiate between parts and a whole.   |

# Mathematics Grade 5

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| <u>5.NO.1b1</u> Read, write, or select a decimal to the hundredths place. (5.NBT.01.3a)  | Ability to identify a decimal to the hundredths place.  | Recognize part whole using materials divided into tenths – Count tenths to determine how many (e.g.4 tenths) (.4 have the decimal present but not required to read).                  |
| <u>5.NO.1b4</u> Round decimals to the next whole number. (5NBT.4)  | Ability to round decimal values to the next whole number.   | Identify place value to the ones, tens, hundreds, thousands.  |
| <u>5.GM.1c3</u> Use ordered pairs to graph given points (5.G.01.1).  | Ability to use ordered pairs to graph points.   | Identify the x and y axis; or concept of intersection.  |
| <u>5.PRF.2b1</u> Generate or select a comparison between two graphs from a similar situation. (5. OA.3)  | Ability to select a comparison between two graphs from a similar situation.   | Compare two pieces of information provided in a single display.   |
| <u>5.ME.1b2</u> Convert standard measurements of length (use symbols to show quantitative relationships, such as 3 feet = 36 inches – not the actual conversions, but the expressions of equivalence). (5.MD.01.1) | Ability to convert a standard measurement of length into a different standard measurement of length within the same system of measurement.  | To measure an object or quantity using 2 different units to show they mean the same thing (e.g., 12 inches and 1 foot). If larger unit, there are less; smaller units, you need more. |
| <u>5.PRF.1a1</u> Determine whether the product will increase or decrease based on the multiplier. (5.NF.02.5)  | Ability to determine whether the product of a multiplication problem will increase or decrease based on the multiplier.   | Limit to whole numbers and 1 or more. Show what happens to set when have one of these (1x) versus some other number (e.g. 2x).  |
| <u>5.NO.2c2</u> Solve word problems involving the addition, subtraction, multiplication or division of fractions. (5.NF.01.2)  | Ability to select the appropriate operation and perform the operation necessary to solve word problems involving the addition, subtraction, multiplication, or division of fractions. | Identify what to do with the parts when given the key word (using the fractional parts).  |

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| <u>5.NO.2c1</u> Solve 1 step problems using decimals. (5.NBT.7)   | Ability to determine and perform the appropriate operation necessary to solve 1-step problems using decimals.                                   | Combine (+) or decompose (-) with concrete objects; use counting to get the answers<br>Match the action of combining with vocabulary (i.e., in all; altogether) or the action of decomposing with vocabulary (i.e., have left; take away) in a word problem. |
| <u>5.NO.2a5</u> Solve word problems that require multiplication or division. (5.NBT.02.6)   | Ability to select the appropriate operation and perform the operation necessary to solve word problems that require multiplication or division. | Combine (x) or decompose (÷) with concrete objects; use counting to get the answers.   |
| <u>5.ME.2a1</u> Solve problems involving conversions of standard measurement units when finding area, volume, time-lapse, or mass in the same system. (5.MD.01.1) | Ability to convert measurements within a measurement system and solve problems involving area, volume, time-lapse, or mass.                     | Identify what measures time (clock used to measure time; calendar used to measure days); identify past/present (for lapsed time).  |

# Mathematics Grade 6

| CCCs   | FKSAs   | Essential Understandings   |
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| <u>6.NO.1d2</u> Locate positive and negative numbers on a number line. (6.NS.03.6)   | Ability to locate positive and negative integers on the number line.                                  | Recognize how values/numbers lie on either side of zero.   |
| <u>6.NO.1f1</u> Calculate a percent of a quantity as rate per 100. (6.PR.01.3c)  | Ability to determine a percentage of a quantity.  | State a relationship to a quantity out of 100.   |
| <u>6.NO.2c3</u> Solve one-step, addition, subtraction, multiplication, or division problems with fractions or decimals. (6.NS.01.1)  | Ability to solve one-step, addition, subtraction, multiplication, or division problems with decimals. | Concept of +, -, x, ÷. Concept of fraction and decimal. Use concrete object to represent the removal (subtraction) or addition of one half from/to a whole object. |
| <u>6.ME.2a2</u> Solve real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours). (6.EE.03.9) | Ability to solve real world measurement problems involving unit rates.                                | Identify a familiar unit rate.   |
| <u>6.PRF.1d1</u> Solve real world single-step linear equations (use symbols to show quantitative relationships). (6.EE.02.7)   | Ability to solve real world single-step linear equations.   | Recognize the intended outcome of a word problem based on a linear equation.   |
| <u>6.NO.1d4</u> Select the appropriate meaning of a negative number in a real world situation. (6.NS.03.5)   | Ability to select the appropriate meaning of a negative integer in a real world situation.            | Ability to select the appropriate representation of more than or less than 0 in a real world situation.  |
| <u>6.PRF.1c1</u> Describe the ratio relationship between two quantities for a given situation. (6.RP.01.1)   | Ability to describe the ratio relationship between two quantities for a given situation.              | Match/identify a simple ratio (1:X) to the relationship between two quantities.  |

6.DPS.1d3 Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for given data set. (6.SP.02.5)

Ability to identify the mean, mode, median, and range for a given set of data.

Identify the highest and lowest value in a data set given a number line and matching symbols; Identify the representation (Plastic snap cubes, wiki sticks) of the mode; Use concrete materials to produce the mean (leveled plastic snap cubes).

6.NO.2a6 Solve problems or word problems using up to three digit numbers and any of the four operations. (6.EE.7)

Ability to select the appropriate operation and perform the operation necessary to solve word problems that require addition, subtraction, multiplication, and/or division of up to 3-digit numbers.

Decompose ( $\div$ ) with concrete objects and can use counting to get the answer.

6.GM.1d1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real world and mathematical problems. (6.G.1)

Ability to find the area of a quadrilateral.

Use manipulatives to measure the area of a rectangle (e.g., tiling).