Indiana Academic Standards for Mathematics – Third Grade
Standards Resource Guide Document

This Teacher Resource Guide, revised in July 2018, provides supporting materials to help educators successfully implement the Indiana Academic Standards for Third Grade. This resource guide is provided to help ensure all students meet the rigorous learning expectations set by the academic standards. Use of this guide and the resources on the web page is optional – teachers should decide which resources will work best for their students. However, all guidance contained in this document and on the website has been chosen to best support effective teaching practices and promote the Mathematics Process Standards.

With an increased emphasis on content area literacy, academic vocabulary has been noted. Additionally, necessary vocabulary that should be prior knowledge has also been listed. Best practices should be utilized when teaching students academic vocabulary. Please see the Literacy Framework for examples of best practices.

Examples have been removed from the document as they tend to limit interpretation and classroom application. Rather, success criteria, in the form of "I can" statements, have been included. According to Hattie (2017), success criteria is specific, concrete and measurable, describing what success looks like when a learning goal is reached. Additionally, success criteria contributes to teacher clarity, which has a 0.75 effect size! An effect size of 0.40 reportedly indicates one year of growth. Utilizing success criteria in the classroom allows students to monitor their own learning and increases motivation (Hattie, p. 57). **It is important to note that the success criteria provided here are not intended to be limiting. Teachers may have additional success criteria for their students.**

Guidance around vertical articulation has been provided in the last two columns. Knowing what was expected of students at previous grade levels will help teachers connect new learning to prior knowledge. Additionally, understanding what a student will be expected to learn in the future provides the teacher a context for the current learning. This information is not exhaustive; rather it is provided to give teachers a quick understanding of how the work builds from previous grade levels into subsequent courses. The Indiana Department of Education (IDOE) math team recommends teachers further study this vertical articulation to situate their course objectives in the broader math context.

If you have any questions, please do not hesitate to reach out to the IDOE math team. Contact information for the Elementary and Secondary Math Specialists can be found on the website: https://www.doe.in.gov/standards/mathematics. If you have suggested resources for the website, please share those as well.

Hattie, J., Fisher, D., Frey, N., Gojak, L. M., Moore, S. D., & Mellman, W. (2017). *Visible learning for mathematics: What works best to optimize student learning, grades K-12*. Thousand Oaks, CA: Corwin Mathematics.

Number Sense					
Third Grade Standards		**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**
3.NS.1	Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.	I can read and write numbers to 10,000. I can write numbers in word form. I can write numbers in expanded form. I can use models to represent numbers. I can show equivalent forms of whole numbers to 10,000.	Standard Form Word Form Expanded Form	Read and write whole numbers up to 1,000. (MA.2.NS.2)	Read and write whole numbers up to 1,000,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000. (MA.4.NS.1)
3.NS.2	Compare two whole numbers up to 10,000 using >, =, and < symbols.	I can compare numbers to 10,000 using greater than, less than, and equal to symbols.	Greater Than Less Than Equal	Use place value understanding to compare two three-digit numbers. (MA.2.NS.7)	Compare two whole numbers up to 1,000,000 using >, =, and < symbols. (MA.4.NS.2)

Number Sense					
3.NS.3	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. [*In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8*.]	I can explain a unit fraction as a piece of something that has been cut into equal parts. I can explain the denominator of a fraction as the total number of parts in which something has been divided. I can explain that a fraction is composed of unit fractions. I can explain the numerator as one or more parts of the whole.	Numerator Denominator Fraction Unit Fraction	Partition a rectangle into rows and columns of same-size (unit) squares and count to find the total number of same-size squares. (MA.2.G.4) Partition circles and rectangles into two, three, or four equal parts; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, four fourths. (MA.2.G.5)	Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. (MA.4.NS.3)

Number Sense					
3.NS.4	Represent a fraction, 1/b, on a number line 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.	I can partition a number line from 0-1 into equal parts. I can show that equal parts of a number line are fractions with equal value. I can successfully place a unit fraction on a number line.	Partition Number Line Fraction Interval	Plot and compare whole numbers up to 1,000 on a number line. (MA.2.NS.3)	Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. (MA.4.NS.3)
3.NS.5	Represent a fraction, a/b, on a number line by marking off 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 partition a number line into equal size intervals. I can locate a fractions on the number line by counting the number of intervals. I can explain the location of a/b represents the size of the fraction.	Fraction Number Line Interval	Plot and compare whole numbers up to 1,000 on a number line. (MA.2.NS.3)	Explain why a fraction, a/b, is equivalent to a fraction, (n × a)/(n × b), by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. (MA.4.NS.4)
3.NS.6	Understand two fractions as equivalent (equal) if they are the same size, based on the same whole or the same point on a number line.	I can demonstrate that two fractions of the same size are equivalent if they are based on the same whole. I can explain that if two fractions share the same	Fraction Equivalent Denominator Number Line	Plot and compare whole numbers up to 1,000 on a number line. (MA.2.NS.3)	Explain why a fraction, a/b, is equivalent to a fraction, (n × a)/(n × b), by using visual fraction models, with attention to how the number and size of the parts differ even

Number Sense					
		location on a number line, then they are of equal value.			though the two fractions themselves are the same size. (MA.4.NS.4)
3.NS.7	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).	I can identify equivalent fractions. I can create equivalent fractions. I can explain why one fraction is equivalent to another.	Equivalent Fraction	Partition a rectangle into rows and columns of same-size (unit) squares and count to find the total number of same-size squares. (MA.2.G.4) Partition circles and rectangles into two, three, or four equal parts; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, four fourths. (MA.2.G.5)	Explain why a fraction, a/b, is equivalent to a fraction, (n × a)/(n × b), with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (MA.4.NS.4)
3.NS.8	Compare two fractions with the same numerator or the same denominator by reasoning about their size based on the same whole.	I can compare the size of two fractions with the same denominator.	Numerator Denominator Greater Than	Partition a rectangle into rows and columns of same-size (unit) squares and count	Compare two fractions with different numerators and different

Number Sense					
	Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model).	I can compare the size of two fractions with the same numerator. I can justify the comparison of two fractions using a fraction model.	Less Than Equal	to find the total number of same-size squares. (MA.2.G.4) Partition circles and rectangles into two, three, or four equal parts; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, four fourths. (MA.2.G.3)	denominators. (MA.4.NS.5)
3.NS.9	Use place value understanding to round 2- and 3-digit whole numbers to the nearest 10 or 100.	I can round numbers to the nearest 10. I can round numbers to the nearest 100.	Round Place Value	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. (MA.2.NS.6)	Use place value understanding to round multi-digit whole numbers to any given place value. (MA.4.NS.9)

Computation				
Third Grade Standards	**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**

Computation					
3.C.1	Add and subtract whole numbers fluently within 1000.	I can use appropriate strategies add numbers within 1000. I can use appropriate strategies to subtract numbers within 1000.	Addend Sum Difference	Add and subtract fluently within 100. (MA.2.CA.1)	Add and subtract multi-digit whole numbers fluently using a standard algorithmic approach. (MA.4.C.1)
3.C.2	Represent the concept of multiplication of whole numbers with the following models: equal-sized groups, arrays, area models, and equal "jumps" on a number line. Understand the properties of 0 and 1 in multiplication.	I can use arrays to demonstrate multiplication. I can use grouping to demonstrate multiplication. I can use area models to demonstrate multiplication. I can “jump” or “count on” to demonstrate multiplication on a number line. I can explain that multiplying any number by 0 is 0 because it produces 0 equal groups. I can explain that multiplying any number by 1 always	Array Area Model Multiplicative Identity Property	Count by ones, twos, fives, tens, and hundreds up to at least 1,000 from any given number. (MA.2.NS.1) Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal groups. (MA.2.CA.5)	Show how the order in which two how numbers are grouped in multiplication (associative property) will not change the product. (MA.4.C.7)

Computation					
		produces one group of that number.			
3.C.3	Represent the concept of division of whole numbers with the following models: partitioning, sharing, and an inverse of multiplication. Understand the properties of 0 and 1 in division.	I can use partitioning to solve division problems. I can use sharing to solve division problems. I can show how division is the inverse of multiplication. I can demonstrate that 0 divided by any number is 0. I can demonstrate that when dividing any number by 1, the quotient is the original number.	Dividend Divisor Quotient Partition Multiplicative Identity Property Inverse	Partition circles and rectangles into two, three, or four equal parts; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, four fourths. (MA.2.G.3)	Find whole-number quotients and remainders. (MA.4.C.3)
3.C.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).	I can explain a quotient as the number of groups a number can be shared into. I can explain a quotient as the number of times an item can be shared.	Dividend Divisor Quotient Partition	Partition circles and rectangles into two, three, or four equal parts; describe the shares using the words halves, thirds, half of, a third of, etc.; and describe the whole as two halves, three thirds, four fourths. (MA.2.G.3)	Find whole-number quotients and remainders. (MA.4.C.3) Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors. (MA.5.C.2)

Computation					
3.C.5	Multiply and divide within 100 using strategies, such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8), or properties of operations.	I can use the relationship between multiplication and division operations to solve multiplication and division problems within 100. I can use the properties of operations to multiply and divide within 100.	Product Quotient Divisor Dividend Factor	Create, extend, and give an appropriate rule for number patterns using addition and subtraction within 1000. (MA.2.CA.7)	Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers. (MA.4.C.2.)
3.C.6	Demonstrate fluency with multiplication facts and corresponding division facts of 0 to 10.	I know the division facts from 0 to 10. I can know the multiplication facts from 0 to 10.	Product Quotient Divisor Dividend Factor	Create, extend, and give an appropriate rule for number patterns using addition and subtraction within 1000. (MA.2.CA.7)	Multiply fluently within 100. (MA.4.C.4) Multiply multi-digit whole numbers fluently using a standard algorithmic approach. (MA.5.C.1)

Algebraic Thinking				
Third Grade Standards	**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**

Algebraic Thinking					
3.AT.1	Solve real-world problems involving addition and subtraction of whole numbers within 1000 (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	I can solve real-world problems involving addition within 1000 using multiple strategies. I can solve real-world problems involving subtraction within 1000 using multiple strategies.	Addend Sum Difference	Solve real-world problems involving addition and subtraction within 100. (MA.2.CA.2)	Solve real-world problems involving addition and subtraction of multi-digit whole numbers. (MA.4.AT.1)
3.AT.2	Solve real-world problems involving whole number multiplication and division within 100 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 use arrays to solve real-world multiplication problems. I can use grouping to solve real-world multiplication problems. I can measure quantities to solve real-world multiplication problems. I can use arrays to solve real-world division problems. I can use grouping to solve real-world division problems. I can measure quantities to solve real-world division problems.	Array Product Quotient	Solve real-world problems involving addition and subtraction within 100. (MA.2.CA.2) Add and subtract within 1000, using models or drawings. (MA.2.CA.4) Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express	Solve real-world problems involving multiplication and division of whole numbers. (MA.5.AT.1)

Algebraic Thinking					
				the total as a sum of equal groups. (MA.2.CA.5)	
3.AT.3	Solve two-step real-world problems using the four operations of addition, subtraction, multiplication and division (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	I can solve real-world problems that require two steps by using addition, subtraction, multiplication, or division using multiple strategies.		Solve real-world problems involving addition and subtraction within 100. (MA.2.CA.2) Add and subtract within 1000, using models or drawings and strategies based on place value. (MA.2.CA.4)	Solve real-world problems involving addition and subtraction of multi-digit whole numbers. (MA.4.AT.1) Solve real-world problems involving multiplication and division of whole numbers. (MA.5.AT.1)
3.AT.4	Interpret a multiplication equation as equal groups (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each). Represent verbal statements of equal groups as multiplication equations.	I can represent a multiplication problem by creating equal groups. I can represent verbal statements of equal groups as multiplication equations.	Product Factor Array	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal groups. (MA.2.CA.5)	Interpret a multiplication equation as a comparison. (MA.4.AT.3)

Algebraic Thinking					
3.AT.5	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	I can find the value of an unknown number within a division equation that includes three numbers. I can find the value of an unknown number within a multiplication equation that includes three numbers.	Factor Dividend Divisor Product Quotient Equation	Solve real-world problems involving addition and subtraction within 100. (MA.2.CA.2)	Understand that an equation, such as y = 3x + 5, is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given. (MA.4.AT.6) Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values. (MA.5.AT.6)
3.AT.6	Create, extend, and give an appropriate rule for number patterns using multiplication within 100.	I can use what I know about multiples to give rules for number patterns within 100. I can use what I know about multiples to create rules for number patterns within 100. I can use what I know about multiples to extend rules for number patterns within 100.	Multiple	Create, extend, and give an appropriate rule for number patterns using addition and subtraction within 1000. (MA.2.CA.7)	Understand that an equation, such as y = 3x + 5, is a rule to describe a relationship between two variables and can be used to find a second number when a first number is given. (MA.4.AT.6) Define and use up to two variables to write linear expressions that

Algebraic Thinking					
					arise from real-world problems, and evaluate them for given values. (MA.5.AT.6)

Geometry					
Third Grade Standards		**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**
3.G.1	Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.	I can identify and describe cubes. I can identify and describe spheres. I can identify and describe prisms. I can identify and describe pyramids. I can identify and describe cones.	Cube Sphere Prism Pyramid Cone Cylinder	Identify, describe, and classify two- and three-dimensional shapes. (MA.2.G.1)	Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms. (MA.7.GM.6) Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface

Geometry					
		I can identify and describe cylinders.			area of spheres. (MA.8.GM.6)
3.G.2	Understand that shapes (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 and draw rhombuses, rectangles, and squares as examples of quadrilaterals. Recognize and draw examples of quadrilaterals that do not belong to any of these subcategories.	I can explain that shapes are related to one another by identifying geometric features they have in common. I can categorize shapes based on their common features. I can identify and draw rhombi. I can identify and draw rectangles. I can identify and draw squares. I can identify and draw quadrilaterals that cannot be categorized as a square, rectangle, or rhombus.	Rhombus Rectangle Square Quadrilateral Right Angle Parallel Base Side Angle	Create squares, rectangles, triangles, cubes, and right rectangular prisms using appropriate materials. (MA.2.G.2)	Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles (right, acute, obtuse). (MA.4.G.5) Identify and classify polygons. (MA.5.G.2)

Geometry					
3.G.3	Identify, describe and draw points, lines and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.	I can identify points, lines and line segments. I can explain what a point is. I can explain what a line is. I can explain what a line segment is. I can draw a point. I can draw a line. I can draw a line segment. I can use the terms, point, line, and line segment to describe two-dimensional shapes.	Point Line Line Segment	Draw two-dimensional shapes. (MA.2.G.1)	Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools. (MA.4.G.4)
3.G.4	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (1/2, 1/3, 1/4, 1/6, 1/8).	I can partition shapes into parts with equal areas. I can show that when shapes are broken into parts with equal areas, these are unit fractions of the whole.	Fraction Numerator Denominator Unit Fraction Partition	Partition a rectangle into rows and columns of same-size (unit) squares and count to find the total number of same-size squares. (MA.2.G.4) Partition circles and rectangles into two,	Recognize area as additive and find the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts. (MA.4.M.4)

Geometry					
				three, or four equal parts. (MA.2.G.5)	

Measurement					
Third Grade Standards		**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**
3.M.1	Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step real-world 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 the mass of objects in g and kg. I can estimate and measure the volume of objects in qt, gal, and l. I can add, subtract, multiply or divide to solve real-world problems involving mass. I can add, subtract, multiply, or divide to solve real-world problems that involve volume.	Volume Mass Estimate Gram Kilogram Quart Gallon Liter	Estimate and measure volume (capacity) using cups and pints. (MA.2.M.4)	Know relative sizes of measurement units within one system of units. (MA.4.M.2)
3.M.2	Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a	I can measure length, weight, and temperature with appropriate tools. I can estimate and measure length to a quarter-inch.	Length Weight Temperature	Estimate and measure the length of an object by selecting and using appropriate tools. (MA.2.M.2)	Measure length to the nearest quarter-inch, eighth-inch, and millimeter. (MA.4.M.1)

Measurement					
	quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.	I can estimate and measure weight in pounds. I can estimate and measure temperature in both Celsius and Fahrenheit. I can choose appropriate tools to measure length, weight, and temperature. I can use appropriate tools to measure length, weight, and temperature. I can choose the appropriate units to measure length, weight, and temperature.	Inch Pound Celsius Fahrenheit Ruler Thermometer Scale		
3.M.3	Tell and write time to the nearest minute from analog clocks, using a.m. and p.m., and measure time intervals in minutes. Solve real-world problems involving addition and subtraction of time intervals in minutes.	I can use an analog clock to tell time to the nearest minute. I can write time to the nearest minute. I can measure time intervals in minutes. I can solve real-world problems that involve adding and subtracting time.	Analog Clock Time Interval	Tell and write time to the nearest five minutes from analog clocks, using a.m. and p.m. (MA.2.M.5)	Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving distances, intervals of time. (MA.4.M.3)

Measurement					
		I can use a.m. and p.m. to write the time.			
3.M.4	Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the $ symbol in the form of dollars and cents (e.g., $4.59). Solve real-world problems to determine whether there is enough money to make a purchase.	I can find the value of a set of money. I can use the cents sign to show an amount of money less than one dollar. I can use the dollar sign to show money more than one dollar. I can solve real-world problems that involve determining whether there is enough money to buy something.	Cents Dollars	Find the value of a collection of pennies, nickels, dimes, quarters and dollars. (MA.2.M.7)	Use the four operations (addition, subtraction, multiplication and division) to solve real-world problems involving money. (MA.4.M.3)
3.M.5	Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the	I can use unit squares to find the area of a rectangle. I can demonstrate that multiplying the side lengths of a rectangle by one another and filling the same rectangle with unit squares creates the same area.	Area Perimeter Unit Squares Square Rectangle	Understand that the length of an object does not change regardless of the units used. (MA.2.M.3)	Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. (MA.4.M.4)

Measurement					
	same area and different perimeters.	I can identify and draw rectangles that have the same perimeter and different areas. I can identify and draw rectangles that have different perimeters and the same area.			
3.M.6	Multiply side lengths to find areas of rectangles with whole-number side lengths to solve real-world problems and other mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	I can solve real-world problems by finding the area of rectangles. I can show how the area of a rectangle is the product of a multiplication equation.	Area Factor Product	Understand that the length of an object does not change regardless of the units used. (MA.2.M.3)	Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. (MA.4.M.4)
3.M.7	Find perimeters of polygons given the side lengths or by finding an unknown side length.	I can find the perimeter of a polygon by adding the side lengths. I can find unknown side lengths of polygons.	Perimeter	Understand that the length of an object does not change regardless of the units used. (MA.2.M.3)	Apply the area and perimeter formulas for rectangles to solve real-world problems and other mathematical problems. (MA.4.M.4)

Data Analysis					
Third Grade Standards		**Success Criteria**	**Academic Vocabulary**	**Looking Back**	**Looking Ahead**
3.DA.1	Create scaled picture graphs, scaled bar graphs, and frequency tables to represent a data set—including data collected through observations, surveys, and experiments—with several categories. Solve one- and two-step "how many more" and "how many less" problems regarding the data and make predictions based on the data.	I can represent data by creating scaled picture graphs. I can represent data by creating scaled bar graphs. I can represent data by creating frequency tables. I can collect data through observations. I can collect data through surveying. I can collect data through experiments. I can make predictions based on data. I can solve problems based on data.	Picture Graph Bar Graph Frequency Table Data Survey Observation	Draw a picture graph (with single-unit scale) and a bar graph (with single-unit scale) to represent a data set with up to four choices. (MA.2.DA.1)	Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, and bar graphs. (MA.4.DA.1) Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. (MA.5.DS.1)

Data Analysis					
3.DA.2	Generate measurement data by measuring lengths with rulers to the nearest quarter of an inch. Display the data by making a line plot, where the horizontal scale is marked off in appropriate units, such as whole numbers, halves, or quarters.	I can use a ruler to measure to the nearest quarter inch. I can gather data by measuring lengths with a ruler. I can display collected data on a line plot designed with appropriate unit.	Ruler Line Plot	Measure the length of an object twice using length units of different lengths for the two measurements. (MA.2.M.3)	Make a line plot to display a data set of measurements in fractions of a unit. (MA.4.DA.2)