Math Grade Level Expectations

M:1 Demonstrates conceptual understanding of rational numbers using models, explanations, or other representations with respect to:

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade

• By connecting oral number words and numerals (up to and including two-digit numbers to 50) to the quantities they represent using physical models and representations **and shows correct sequence of cardinal numbers.**	• **0 to 100 using models, explanations, or other representations.**
	• **using place value (a grouping system wherein a digit's place in a number denotes its value; e.g., in 34, 3 represents 3 tens, or 30)**
	• **applying the concepts of equivalency in composing or decomposing numbers (e.g., 12 = 7 + 5)**
	• **in expanded notation** (e.g., 41 = 4 tens + 1 one or 41 = 40 + 1)
	• **Shows correct sequence of ordinal and cardinal numbers**
	• **compares cardinal numbers** and **positive fractional numbers (benchmark fractions: *a*/2, *a*/3, or *a*/4 where a is a whole number greater than 0 and less than or equal to the denominator) as part/whole relationships of benchmark fractions with models, diagrams, or written or verbal/scribed response.**
		• whole numbers from **0 to 199**
		• using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., 34 = 17 + 17; 34 = 29 + 5); and in
		• expanded notation (e.g., 141 = 1 hundred + 4 tens + 1 one or 141 = 100 + 40 + 1)
		positive fractional numbers (benchmark fractions: *a*/2, *a*/3, or *a*/4, where *a* is a whole number greater than 0 and less than or equal to the denominator) **as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole** using models, explanations, or other representations
			• whole numbers **from 0 to 999** through equivalency, composition, decomposition, or place value
			• positive fractional numbers (benchmark fractions: *a*/2, *a*/3, *a*/4, ***a*/6, or *a*/8**, where *a* is a whole number greater than 0 and less than or equal to the denominator)
			  ○ as a part to whole relationship in area and
			  ○ set models where the number of parts in the whole is equal to the denominator; and
			• **decimals (within a context of money) as a part of 100**
			M(N&O)–3–1
				• whole numbers **from 0 to 999,999** through equivalency, composition, decomposition, or place value
				using models, explanations, or other representations
				• **positive fractional numbers** (benchmark fractions: *a*/2, *a*/3, *a*/4, ***a*/5,** *a*/6, *a*/8, or ***a*/10,)**
				• **linear models** where the number of parts in the whole are equal to, and a **multiple or factor of the denominator**
				• **decimals as hundredths** within the context of money, or tenths **within the context of metric measurements**
					• whole numbers from **0 to 9,999,999** through equivalency, composition, decomposition, or place value
					• positive fractional numbers (**proper, mixed number, and improper) (halves, fourths, eighths, thirds, sixths, twelfths, fifths, or powers of ten [10, 100, 1000]),**
					• **decimals** (**to thousandths**), or
					• **benchmark percents (10%,25%, 50%, 75% or 100%)** as a part to whole relationship in area, set, or linear models

Math Grade Level Expectations

M: 2 Demonstrates understanding of the relative magnitude of numbers by

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Demonstrates understanding of the relative magnitude of numbers from 0 to 50 by ordering whole numbers by • demonstrating one-one correspondence • showing the relationship between whole numbers (1 more, 1 less).	of numbers **from 0 to 100 using models, representations, or number lines** by • ordering whole numbers • **comparing whole numbers to each other or to benchmark numbers (10, 25, 50)** • showing the relationship between whole numbers (1 more, 1 less; **10 more, 10 less)** • **connecting number words and numerals to the quantities they represent**	of numbers from **0 to 199** using models, number lines, or **explanations** by • ordering whole numbers • comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, **75, 100, 125, 150, or 175)** • **demonstrating an understanding of the relation of inequality** when comparing whole numbers by using "1 more," "1 less," "10 more," "10 less," "100 more," or "100 less" • connecting number words and numerals to the quantities they represent	of numbers using models, number lines, or explanations from **0 to 999** by • ordering whole numbers; by comparing whole numbers to benchmark whole numbers (100, **250, 500, 750**); or • by **comparing whole numbers to each other; and** • **comparing or identifying equivalent positive fractional numbers (*a*/2, *a*/3, *a*/4 where *a* is a whole number greater than 0 and less than or equal to the denominator)** M(N&O)–3–2	using models, number lines, or explanations. • from **0 to 999,999** by ordering or comparing whole numbers • ordering, comparing, or identifying equivalent **proper** positive **fractional numbers or decimals**	• ordering, comparing, or identifying equivalent positive fractional numbers, decimals, or **benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents)**; or • **integers** in context using models or number lines. •

Math Grade Level Expectations

M: 3 Demonstrates conceptual understanding of mathematical operations using models, number lines, or explanations.

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
involving addition and subtraction by solving problems involving situations in which one adds to, takes from.	involving addition and subtraction by solving problems involving situations in which one; • adds to, takes from, • **puts together, and takes apart,** • **adds.**	involving addition and subtraction of whole numbers by solving problems involving; • **joining actions,** • **separating actions,** • **part-part-whole relationships** • **comparison situations** • **addition of multiple one-digit whole numbers**. See appendix A	• **describing or illustrating the inverse relationship between addition and subtraction of whole numbers**; and • **describing the relationship between repeated addition and multiplication**	Describing or illustrating: • **the relationship between repeated subtraction and division (no remainders)** • **the inverse relationship between multiplication and division of whole numbers** • **addition or subtraction of positive fractional numbers with like denominators** •	• describing or illustrating the **meaning of a remainder with respect to division of whole numbers** using models, explanations, or **solving problems.** •

Math Grade Level Expectations

M: 4 Accurately solves problems involving

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• Accurately solves problems in context involving addition and subtraction using whole numbers.	• In **and out of context** involving addition and subtraction using whole numbers.	**No GE at this grade level**	• **addition and subtraction with and without regrouping;** • **the concept of multiplication; and** • **addition or subtraction of decimals (in the context of money).**	• **multiple operations on whole numbers or** • **the use of the properties of factors and multiples** • addition or subtraction of **decimals and positive proper fractions with like denominators. (Multiplication limited to 2 digits by 2 digits, and division limited to 1 digit divisors.)**	• multiple operations on whole numbers or • the use of the properties of factors, multiples, **prime, or composite numbers**; and • addition or subtraction of fractions (proper) and • **decimals to the hundredths place. (Division of whole numbers by up to a two-digit divisor.)** •

Math Grade Level Expectations

M: 5 Demonstrates understanding of monetary value by

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• Recognizes and names coins.	• **understanding of monetary value of coins and adds coins together to a value no greater than $1.00.**	• adding coins together to a value no greater **than $1.99** • **representing the result in dollar notation** • **making change from $1.00 or less** • **recognizing equivalent coin representations of the same value (values up to $1.99).** •	No GE	No GE	No GE

Math Grade Level Expectations

M:6 Mental Math

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	Mentally adds and subtracts • whole-number facts through ten with accuracy.	Mentally adds and subtracts • whole-numbers facts through **twenty** with accuracy.	Mentally adds and subtracts • whole-numbers facts through twenty with accuracy**.**	Mentally adds and subtracts with accuracy. • whole numbers through twenty and • **multiplies whole numbers through twelve** •	Mentally multiplies and **divides** with accuracy. • whole numbers through twelve •

M:7 Estimating reasonable solutions

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• Estimates and evaluates the reasonableness of solutions appropriate to grade level.	• Estimates and evaluates the reasonableness of solutions appropriate to grade level.	• Estimates and evaluates the reasonableness of solutions appropriate to grade level.	• Estimates and evaluates the reasonableness of solutions appropriate to grade level	• Estimates and evaluates the reasonableness of solutions appropriate to grade level.	• Estimates and evaluates the reasonableness of solutions appropriate to **grade level.** •

Math Grade Level Expectations

M:8 Applies properties of numbers to solve problems and to simplify computations.

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	and to simplify computations involving whole numbers. • odd, even, • composition/decomposition [5 is the same as 2 + 3] • commutative, identity	involving whole numbers. • Odd and even numbers • Operations: commutative**,** **associative**, identity	**to solve problems and to simplify computations.** • **Applies properties of numbers (odd, even) and** • **applies the commutative and associative properties of addition** •	• odd, even, • **factor, multiple,** • **remainders,** • **composition/decomposition** •	• odd, even, • factor, multiple, • **prime, composite,** • **divisibility,** remainders, • composition/decomposition) •

Math Grade Level Expectations (Geometry and Measurement Concepts)

M:9 Attributes and Angles

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Uses attributes, composition, or decomposition to • sort or classify objects using at least one attribute (e.g., color). • Recognizes and names polygons (triangles, squares, rectangles) and circles in their environment. •	Uses attributes, composition, or decomposition to • sort or classify **polygons** (triangles, squares, rectangles, **rhombi, trapezoids, and hexagons)** • sort or classify objects by a **combination of two** non-measurable or measurable attributes. • Recognizes and names **polygons** and circles in their environment.	**Uses** properties, **attributes, composition, or decomposition to;** • **sort or classify polygons or objects by a combination of two** or more **nonmeasurable or measurable attributes.** •	• **identifies, describe, or distinguish among triangles, squares, rectangles, rhombi, trapezoids, hexagons, or circles.** • **Uses properties or attributes of angles (number of angles) or sides (number of sides or length of sides)** • **Uses composition or decomposition of shapes** •	• Uses properties or attributes of angles (number of angles) or sides (number of sides, length of sides, **parallelism, or perpendicularity**) **to** • identify, describe, or distinguish among triangles, squares, rectangles, rhombi, trapezoids, hexagons, or **octagons;** or • **classify angles relative to** 90^{o} as more than, less than, or equal to. • Recognizes symmetrical figures and uses symmetry to identify and classify figures. •	• Uses properties or attributes of angles or sides to identify, describe, **classify**, or distinguish among • **right, acute, or obtuse** angles • **number of congruent sides,** • parallelism, or perpendicularity • **different types of triangles (right, acute, obtuse, equiangular, or equilateral)** • **quadrilaterals (rectangles, squares, rhombi, trapezoids, or parallelograms).** •

Math Grade Level Expectations (Geometry and Measurement Concepts)

M:11 Attributes and Shapes

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	Identifies objects in the environment given an example of a three-dimensional shape (e.g., show a wooden cylinder and students identify common objects of the same shape).	**Identifies three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres) and their attributes and recognizes them in their environment.** •	**Uses properties or attributes (shape of bases or number of lateral faces) to** • **identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres).** •	Uses properties or attributes (shape of bases or number of lateral faces) to • identify, compare, or describe three-dimensional shapes (rectangular prisms, triangular prisms, cylinders, or spheres). • **Identify components (faces, edges, and vertices) of three dimensional shapes (cubes and rectangular prisms).** •	Uses properties or attributes to identify, compare, or describe three-dimensional shapes • shape of bases, • number of lateral faces, or • **number of bases (rectangular prisms, triangular prisms, cylinders, spheres, pyramids**, or cones). •

Math Grade Level Expectations (Geometry and Measurement Concepts)

M:12 Congruency

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	**No GE**	**No GE**	Demonstrates conceptual understanding of congruency by • using transformations (flips and slides and turns), and shape and size of polygons.	Demonstrates conceptual understanding of congruency by • **matching congruent figures using reflections, translations, or rotations (flips, slides, or turns), or** • **composing or decomposing shapes using models or explanations.** •	Demonstrates conceptual understanding of congruency by • matching congruent figures using reflections, translations, or rotations (flips, slides, or turns) • composing or decomposing shapes using models or explanations. •

Math Grade Level Expectations (Geometry and Measurement Concepts)

M:13 Similarity

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	**No GE**	**No GE**	**No GE**	Demonstrates conceptual understanding of similarity by • applying scales on maps, or • applying characteristics of similar figures (same shape, but not necessarily the same size) to identify similar figures, or • solving problems involving similar figures. • Describing relationships using models or explanations.	Demonstrates conceptual understanding of similarity by • **describing the proportional effect on the linear dimensions of polygons when scaling up or down while preserving the angles of polygons,** or • **solving related problems** (including applying scales on maps). • Describing **effects** using models or explanations. •

Math Grade Level Expectations (Geometry and Measurement Concepts)

M: 14 Perimeter and Area

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
•	•	Demonstrates conceptual understanding of • perimeter and area by using models or manipulatives to surround and cover polygons.	Demonstrates conceptual understanding of • perimeter of polygons, • The area of rectangles **on grids** • uses a variety of models or manipulatives. • **Expresses all measures using appropriate units.** •	Demonstrates conceptual understanding of • perimeter of polygons, and • the area of rectangles**, polygons, or irregular shapes** on grids using a variety of models, manipulatives, or **formulas.** • Expresses all measures using appropriate units.	Demonstrates conceptual understanding of • perimeter of polygons, and • the area of rectangles **or right triangles** through models, manipulatives, or formulas, • the area of polygons or irregular figures on grids, and • **volume of rectangular prisms (cubes)** • Expresses measures using appropriate units. •

Math Grade Level Expectations

M: 15 Measurement

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Identifies the appropriate standard tool used to measure length, temperature, and weight.	**Selects** an appropriate tool with which to measure • length, temperature, weight, and volume • uses **nonstandard units for linear measurement and weight**	• Measures and **uses units of measures appropriately and consistently, and** • **makes conversions within systems when solving problems across the content strands**	• Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.	• Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.	Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.

Math Grade Level Expectations

M:16 Telling Time

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• Determines elapsed and accrued time as it relates to before/after and sequences of events (first, next, last), and identifies a clock and calendar as measurement tools.	Determines elapsed and accrued time as it relates to • **the patterns of days of the week, yesterday, today, tomorrow** • **tells time to the half hour.**	Determines elapsed and accrued time as it relates to the; • patterns of days of the week, • **months** • **hours** • **tells time to five minutes.**	• Determines elapsed and accrued time to **the ¼ hour.**	• Determines elapsed and accrued time to the ¼ hour	• Determines elapsed and accrued time to the nearest minute.

Math Grade Level Expectations

M:18 Finding locations and coordinates

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Find and name locations with simple relationships (i.e., near, far, above, below, next to).	Find and name locations with simple relationships (i.e., near, far, above, below, next to**, up, down, right, left).**	**Solves problems using a two-dimensional coordinate system (*x* and *y* axes—quadrant I) to locate and** • **describe positions on a map.**	Solves problems using the **Cartesian coordinate** system • (Quadrant I) to locate **coordinates and to represent data from tables.** •	**Solves problems using the Cartesian coordinate system** • (Quadrant 1) to locate coordinates and to represent data from tables. •	Solves problems using the Cartesian coordinate system **(all quadrants)** to • locate coordinates and to represent data from tables. •

Math Grade Level Expectations (Functions and Algebra Concepts)

M:19 Identifies and extends to specific cases a variety of patterns

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• including sequences of shapes, sounds, movement, colors, letters, and numbers by extending the pattern to the next one, two, or three elements.	• including sequences of shapes, sounds, movement, colors, letters, and numbers by extending the pattern to the next one, two, or three elements.	• (**linear and non-numeric) represented in models, tables, or sequences by** • **extending the pattern to the next element** • **finding a missing element (e.g., 2, 4, 6, ___, 10).**	(linear and non-numeric) represented in models, tables, or sequences by • extending the pattern to the next one, **two, or three elements**, or • finding missing **elements.**	• (linear and **nonlinear**) represented in models, tables or sequences; and • **writes a rule in words or symbols to find the next case.**	represented in models, tables, sequences • linear and nonlinear • **in problem situations**; and • writes a rule in words or symbols **for finding specific cases of a linear relationship.**

Math Grade Level Expectations (Functions and Algebra Concepts)

M:20 Demonstrates a conceptual understanding of linear relationships ($y = kx$) as a constant rate of change by;

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• Demonstrates a conceptual understanding of change qualitatively (growth—student growing taller).	• Demonstrates a conceptual understanding **of linear relationships** ($y = kx$) **as a constant rate of change** qualitatively (growth—student growing taller) • **and quantitatively (measurable growth—2 inches each year).**	• qualitatively (growth—student growing taller) and • quantitatively (measurable growth—2 inches each year)	• **identifying, describing, or comparing situations that represent constant rates of change.**	• identifying, describing, or comparing situations that represent constant rates of change.	• identifying, describing, or comparing situations that represent constant rates of change.

Math Grade Level Expectations (Functions and Algebra Concepts)

M:21 Demonstrates conceptual understanding of algebraic expressions by

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	**No GE**	**No GE**	**No GE**	• using letters or symbols to represent unknown quantities to write simple linear algebraic expressions involving any one of the four operations; or • evaluating simple linear algebraic expressions using whole numbers.	• using letters to represent unknown quantities to write linear algebraic expressions involving **any two** of the four operations; or • by evaluating linear algebraic expressions using whole numbers.

Math Grade Level Expectations

M:22 Demonstrates conceptual understanding of equality by

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Demonstrates conceptual understanding of equality using models or verbal explanations by • showing equivalence between two expressions (4+1=5; 2+3=5) by • solving one-step equations involving whole number addition or subtraction	Demonstrates conceptual understanding of equality using models, verbal explanations, **or written equations** by • showing equivalence between two expressions (4+1=5; 2+3=5) • solving one-step equations involving whole number addition or subtraction	• **finding the value that will make an open sentence true (e.g., 2 + □ = 7)** **limited to one operation and limited to use addition or subtraction).**	• showing equivalence between two expressions **using models or different representations of the expressions**; or • by finding the value that will make an open sentence true (e.g., 2 + □ = 7) (limited to one operation and limited to use addition, subtraction, or **multiplication**).	• showing equivalence between two expressions using models or different representations of the expressions, • **simplifying numerical expressions where left to right computations may be modified only by the use of parentheses [e.g., 14 – (2 × 5)]** • **solving one-step linear equations of the form *ax* = *c*, *x* ± *b* = *c*, where *a*, *b*, and *c* are whole numbers with a ≠ 0**	• showing equivalence between two expressions using models or different representations of the expressions (expressions consistent with the parameters of **M(F&A)–5–3),** • solving one-step linear equations of the form $ax = c$, $x \pm b = c$, or **x/a = c**, where *a, b*, and *c* are whole numbers with a ≠ 0; or • **determining which values of a replacement set make the equation (multistep of the form *ax* ± *b* = *c* where *a*, *b*, and *c* are whole numbers with a ≠ 0) a true statement (e.g., 2 x + 3 = 11, { *x: x* = 2, 3, 4, 5}).**

Math Grade Level Expectations (Data, Statistics and Probability Concepts)

M:23 Interpreting Tables, Charts and Graphs

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Interprets a given representation (models and tally charts) through written or verbal/scribed response to • answer questions related to the data • analyze the data to formulate conclusions.	Interprets a given representation (models, tally charts, **pictographs with one-to-one correspondence, and tables)** through written or verbal/scribed response • to answer questions related to the data • to analyze the data to formulate conclusions.	Interprets a given representation to answer questions related to the data, or to analyze the data to formulate conclusions. • pictographs with one-to-one correspondence, • **line plots**, • tally charts • tables	Interprets a given representation (line plots, tally charts, tables, or **bar graphs**) to • answer questions related to the data • analyze the data to formulate conclusions, or • **make predictions**.	Interprets a given representation (line plots, tables, bar graphs, **pictographs, circle graphs, tally charts, frequency charts, line graphs, Venn diagrams).to** • answer questions related to the data, • analyze the data to formulate or • **justify** conclusions, to make predictions, or to • **solve problems.**	Interprets a given representation (tables, bar graphs, circle graphs, or **line graphs**, tally charts, frequency charts, line graphs, Venn diagrams, **pictographs, line plots, histograms**) to • answer questions related to the data, • analyze the data to formulate or justify conclusions, • make predictions, or • solve problems.

Math Grade Level Expectations (Data, Statistics and Probability Concepts)

M:24 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
• using "more," "less," or "equal." (e.g., "In a plus 2 pattern, there will be more items on the fifth day than on the first day.")	• "more," "less," or "equal."	• "more," "less," or "equal."	• "**most frequent" (mode), "least frequent," "largest," or "smallest."**	• **measures of central tendency** ○ **median or mode** ○ **range.**	• measures of central tendency (**mean**, median, or mode) or • range to **analyze situations**, or to **solve problems**

Math Grade Level Expectations

M:25 Organizing and displaying data

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Organizes and displays data using diagrams, models, or tally charts through written or verbal/scribed response • to answer questions related to the data, • to analyze the data • to formulate conclusions.	Organizes and displays data using diagrams, models, or tally charts through written or verbal/scribed response • to answer questions related to the data, • to analyze the data • to formulate conclusions.	Organizes and displays data using diagrams, models, tally charts, **or tables** to • answer questions related to the data • analyze the data • formulate conclusions.	• **Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in M3: 23.** • Organizes and displays data using **bar graphs** or tables to ○ answer question related to the data ○ analyze the data ○ formulate or **justify** conclusions, ○ **make predictions.**	Organizes and displays data using • **line plots,** bar graphs, tally charts and frequency charts, or • tables to answer questions related to the data, to analyze the data to formulate or **justify** conclusions, or to make predictions.	Identifies or describes representations or elements of representations that best display a given set of data or situation, Organizes and displays data using line plots, bar graphs, tally charts and frequency charts, or tables to • answer questions related to the data, • analyze the data • formulate or justify conclusions, • make predictions, or • solve problems.

Math Grade Level Expectations

M:26 Using Counting Techniques to Solve Problems

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
No GE	**No GE**	Uses counting techniques to solve problems involving combinations using a variety of strategies • (e.g., student diagrams, organized lists, tables, tree diagrams, or others) • (e.g., "How many ways can you make 50 cents using nickels, dimes, and quarters?")	Uses counting techniques to solve problems in context to • **determine possibilities** using a variety of strategies • (e.g., student diagrams, organized lists, tables, tree diagrams, or others); • (e.g., "How many ways can you make 50 cents using nickels, dimes, and quarters?" • **Given a map—"How many different ways can you go from point A to B?")**	Uses counting techniques to solve problems • in context involving combinations or **simple permutations** (e.g.,given a map, determines the number of paths from point A to point B) • using a variety of strategies (e.g., organized lists, tables, tree diagrams, or others).	Uses counting techniques to solve problems • in context involving combinations using a variety of strategies (e.g., organized lists, tables, tree diagrams, or others); • **determines the possible outcomes for a sample space that contains equally likely outcomes.**

Math Grade Level Expectations

M:27 Probability

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
	For a probability event in which the sample space may or may not contain equally likely outcomes, • uses experimental probability to describe the likelihood or chance of an event (using "more likely," "less likely").	For a probability event in which the sample space may or may not contain equally likely outcomes, • Uses experimental probability to describe the likelihood or chance of an event using "more likely," "less likely," • **"equally likely," "certain," or "impossible."**	For a probability event in which the sample space may or may not contain equally likely outcomes, • **determines the likelihood of the occurrence** of an event • using "more likely," "less likely," or "equally likely"	For a probability event in which the sample space may or may not contain equally likely outcomes, determines • **the theoretical probability of an event and expresses the result as part to whole (e.g., two out of five).**	For a probability event in which the sample space may or may not contain equally likely outcomes, • determines the **experimental** or theoretical probability of an event and • **expresses the result as a fraction.**

Math Grade Level Expectations

M:28 Data Collection

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
In response to a teacher - or student-generated question or hypothesis, • collects appropriate data and makes observations about the data through written or verbal/scribed response.	In response to a teacher - or student-generated question or hypothesis, • collects appropriate data **to answer the question or hypothesis being tested** through written or verbal/scribed response.	In response to a teacher - or student-generated question or hypothesis, • collects appropriate data, • **organizes the data,** • **displays/represents the data,** and • **makes observations about the data to draw conclusions about** the question or hypothesis being tested.	In response to a teacher - or student-generated question or hypothesis**,** • collects appropriate data, • organizes the data, • displays/represents the data, and • makes observations about the data to draw conclusions about the question or hypothesis being tested.	In response to a teacher - or student-generated question or hypothesis, • collects appropriate data, organizes the data, displays/represents the data, • **analyzes the data to draw** conclusions about the questions or hypothesis being tested.	In response to a teacher - or student-generated question or hypothesis, • collects appropriate data, • organizes the data, appropriately • displays/**represents numerical and/or categorical data,** • analyzes the data to draw conclusions about the questions or hypothesis being tested, • **when appropriate makes predictions, asks new questions, or makes connections to real-world situations.**

Math Grade Level Expectations

M:29 Experimental Probability

Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
NO GE	NO GE	NO GE	Uses experimental probability to • describe the likelihood or chance of an event • using "more likely," "less likely," "equally likely," "certain," or "impossible."	**Uses experimental probability, records the outcomes, and describes the likelihood of an event** • **as a value from 0 through 1 (for events that are certain to occur)** • **written as either a ratio or as part to whole (e.g., 7 out of 10).**	**Uses experimental probability**, evaluates the possible outcomes, and describes the likelihood or chance of an event • **as a ratio of actual times the event occurred to the number of trials** ○ **written as either a ratio or as part to whole**.