High School Teaching and Learning
2022-2023 Scope and Sequence
NC Math 2

FIRST NINE WEEKS	OVERVIEW
	NC Math 2 continues a student's study of algebraic and geometric concepts building upon middle school topics and NC Math 1. Students are developing knowledge to reach a higher level of understanding in new and previously learned topics, which include quadratics, exponentials, and systems of equations. New concepts within geometry are introduced including transformations, triangle properties and proofs, and trigonometry. Additionally, students are engaging in topics where they are encouraged to think, write, communicate, and solve real world scenarios, which includes making connections to other subjects.

See the bottom of this document for a detailed description of the assessments as well as the parent/family resources.

UNIT	UNIT DURATION	PARENT/FAMILY RESOURCES	NORTH CAROLINA STANDARDS
Unit 1: Transformations Learning Targets: •I can describe the different types of transformations (translations, reflections, rotations, dilations). • I can compare transformations that preserve distance and angle measure (rigid transformations) to those that do not. •I can compare transformations that preserve distance and angle measure (rigid transformations) to those that do not. •I can describe translations and reflections as functions that use points in the coordinate plane as inputs and produce points as outputs. •I can use and interpret function notation for describing translations and reflections (Ex. Write the translation left 5, up 2 as (x,y) > (x-5, y + 2). •I can describe a rotation as a function that uses points in the coordinate	Approximately 10 Days	Transformations: Video Tutorials Extra practice	**Understanding and applying properties of transformations.** ● NC.M2.F-IF.1: Extend the concept of a function to include geometric transformations in the plane by recognizing that: ○ the domain and range of a transformation function f are sets of points in the plane; ○ the image of a transformation is a function of its pre-image. ● NC.M2.F-IF.2: Extend the use of function notation to express the image of a geometric figure in the plane resulting from a translation, rotation by multiples of 90 degrees about the origin, reflection across an axis, or dilation as a function of its pre-image. ● NC.M2.G-CO.2: Experiment with transformations in the plane; represent transformations in the plane; compare rigid motions that preserve distance and angle measure (translations, reflections, rotations) to transformations that do not preserve both distance and angle measure (e.g. stretches, dilations). Understand that rigid motions produce congruent figures while dilations produce similar figures. ● NC.M2.G-CO.3: Given a triangle, quadrilateral, or regular polygon, describe any reflection or rotation symmetry i.e., actions that carry the figure onto itself. Identify center and angle(s) of rotation symmetry. Identify line(s) of reflection symmetry. NC.M2.G-CO.4: Verify experimentally properties of rotations, reflections, and translations in terms of angles, circles, perpendicular lines,

plane as inputs and produce points as outputs. •I can use and interpret function notation for describing rotations (Ex. 90 degree counterclockwise rotation is (x, y) > (-y, x). •I can dilate a point or line segment with a given center and a scale factor, including notation (Ex. Dilation of (x, y) > (2x, 2y). • I can define a translation to be a transformation that shifts points a specified distance along a line parallel to a specified axis (either right/left or up/down). •I can define a reflection to be a transformation that moves a figure along a line perpendicular to a line of symmetry an equal distance from it. •I can describe the reflections that will carry a figure onto itself. •I can see that the line of reflection is equidistant from points on the pre-image and image. •I can reflect figures over both vertical and horizontal lines that are not the axes (i.e. y = 2 or x = -5). •I can apply multiple reflections, rotations and translations to any figure or point (using graph paper, transparency paper, and technology). •I can define a rotation to be a transformation that moves a figure along an arc with a specified angle about a specified center. •I can describe the rotations that will carry a figure onto itself.			parallel lines, and line segments. ● NC.M2.G-CO.5: Given a geometric figure and a rigid motion, find the image of the figure. Given a geometric figure and its image, specify a rigid motion or sequence of rigid motions that will transform the pre-image to its image. ● NC.M2.G-CO.6: Determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other. ● NC.M2.G-SRT.1: Understand similarity in terms of similarity transformations. Verify experimentally the properties of dilations with given center and scale factor: a. When a line segment passes through the center of dilation, the line segment and its image lie on the same line. When a line segment does not pass through the center of dilation, the line segment and its image are parallel. b. Verify experimentally the properties of dilations with given center and scale factor: The length of the image of a line segment is equal to the length of the line segment multiplied by the scale factor. c. The distance between the center of a dilation and any point on the image is equal to the scale factor multiplied by the distance between the dilation center and the corresponding point on the pre-image. d. Dilations preserve angle measure

•I can predict the effect of a rigid transformation on a given figure. •I can dilate basic polygon with a given center and a scale factor. •I can recognize that lines segments on the pre-image and image of a dilation are parallel. •I can identify the transformations that will graph a given pre-image onto its image (and reverse). I can perform a combination of transformations.			
Unit 2: Quadratics **Learning Targets** •I can perform operations with polynomials •I can identify the vertex, axis of symmetry, x and y-intercepts, and domain of a quadratic function from the graph. •I can identify the vertex, y-intercept, and whether the parabola opens up or down from the from standard or vertex form of the equation of the quadratic. •I can shift a quadratic graph both horizontally and vertically and describe how these shifts affect the equation. • I can factor using: •GCF •Grouping •Difference of Squares •I can solve a quadratic by factoring when the leading coefficient is one and explain the steps.	Approximately 20 Days	Polynomials and Quadratics: Video Tutorials Extra practice	**Interpret, compare, and analyze quadratic functions in different representations.** ● NC.M2.A.SS.E.1a: Interpret expressions that represent a quantity in terms of its context. a. Identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents. ● NC.M2.A.SS.E.1b: Interpret expressions that represent a quantity in terms of its context. b. Interpret quadratic and square root expressions made of multiple parts as a combination of single entities to give meaning in terms of a context. ● NC.M2.F.IF.4: Interpret functions that arise in applications in terms of context. Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior. NC.M2.F.IF.7: Analyze functions using different representations. Analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features,

•Factor (and solve) when a>1. •I can solve a basic quadratic using algebra (ex. X2 – 20 = 5) and explain the steps. •I can solve a quadratic by using the quadratic formula. •I can recognize when a quadratic has no real solution. •I can solve a quadratic equation with complex. solutions as a±bi for real numbers a and b. •I understand $i^2 = -1$, therefore $i = \sqrt{-1}$. •I can write a quadratic in standard form in an equivalent form to reveal the vertex of the function by completing the square. •I can see the relationship between completing the square and the quadratic formula. •I can use completing the square to solve a quadratic function. •I can interpret the equation and graph of a quadratic that models a real world situation (ex. Projectile motion, area, profit…). •I can solve and interpret the solutions of a quadratic in context. •I can describe an appropriate domain of a quadratic function in context. •I can explain the effect of a shift in context. •I can use the regression feature of the calculator to determine a quadratic equation for a given table of values.			including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior. ● NC.M2.F.IF.9: Analyze functions using different representations. Compare key features of two functions (linear, quadratic, square root, or inverse variation functions) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions). ● NC.M2.A.REI.7: Use tables, graphs, and algebraic methods to approximate or find exact solutions of systems of linear and quadratic equations, and interpret the solutions in terms of a context. Solve quadratic equations algebraically. ● NC.M2.A.APR.1: Perform operations on polynomials. Extend the understanding that operations with polynomials are comparable to operations with integers by adding, subtracting, and multiplying polynomials. ● NC.M2.N-CN.1: Know there is a complex number i such that , and every complex number has the form where and are i –1 2 = a + b a b i real numbers. ● NC.M2.A.SSE.3: Interpret the structure of expressions. Write an equivalent form of a quadratic expression by completing the square, where is an integer of a quadratic expression, , to reveal the maximum or minimum value of the function the expression defines. ● NC.M2.A.REI.4a: Solve for all solutions of quadratic equations in one variable. a. Understand that the quadratic formula is the generalization of solving ax2+bx+c by using the process of completing the square. ● NC.M2.A.REI.4b: Solve for all solutions of quadratic equations in one variable. b. Explain when quadratic equations will have non-real solutions and express complex solutions as a+bi for real numbers a and b. ● NC.M2.A.REI.1: Understand solving equations as a process of reasoning and explain the reasoning. Justify a chosen solution method and

•I can find an equation of best fit for data in a real world context. •I can compare and contrast the key features (vertex, y-int, zeros, etc) of two or more functions given in different forms (i.e. Given a graph of one and the algebraic expression for the other, identify which has the larger maximum, use the table of one function to find an equation and compare).			each step of the solving process for quadratic, square root and inverse variation equations using mathematical reasoning. ● NC.M2.F.IF.8: Use equivalent expressions to reveal and explain different properties of a function by developing and using the process of completing the square to identify the zeros, extreme values, and symmetry in graphs and tables representing quadratic functions, and interpret these in terms of a context. **Transform and model quadratic functions.** ● NC.M2.F.BF.1: Write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table). ● NC.M2.F.BF.3: Understand the effects of the graphical and tabular representations of a linear, quadratic, square root, and inverse variation function f with k · f(x) , f(x) + k, f(x+k) for specific values of k (both positive and negative). ● NC.M2.A.CED.1: Create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. ● NC.M2.A.CED.2: Create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities. ● NC.M2.A.CED.3: Create systems of linear, quadratic, square root, and inverse variation equations to model situations in context.
Unit 3: Square Root & Inverse variation Functions, Systems of equations **Learning Targets:** • I can rewrite expressions involving radicals and rational exponents using the properties of exponents.	Approximately 15 Days	Square roots and exponents: [Khan Academy tutorials and practice] Systems of equations: [Extra practice] [Video tutorials]	**Extend and apply the properties of rational exponents.** ● NC.M2.N-RN.1: Explain how expressions with rational exponents can be rewritten as radical expressions. ● NC.M2.N-RN.2: Rewrite expressions with radicals and rational exponents into equivalent expressions using the properties of exponents. ● NC.M2.N-RN.3: Use the properties of rational and irrational numbers to explain why: · the sum or product of two rational numbers is rational;

•I can identify and provide examples of rational and irrational numbers. •I can explain and provide an example for the following: •The sum or product of two rational numbers is rational. •The sum of a rational number and an irrational number is irrational. •The product of a nonzero rational number and an irrational number is irrational. •I can determine the domain and range of square root functions. •I can solve square root functions that model situations in context. •I can write equations for direct, inverse, and joint variation •I can determine what type of variation an equation represents situations. •I can create and solve systems of linear, quadratic, square root, and inverse variation equations to model situations in context. •I can solve a square function with radicals on one or both sides of the equation. •I can check to see if the solutions are extraneous. •I can solve direct, inverse, and joint variation equations, including those given in context. •I can graph a simple square root function by hand. •I can shift a square root function both horizontally and vertically.			· the sum of a rational number and an irrational number is irrational; · the product of a nonzero rational number and an irrational number is irrational. ● NC.M2.A.SS.E.1a: Interpret expressions that represent a quantity in terms of its context. a. Identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents. ● NC.M2.A.SS.E.1b: Interpret expressions that represent a quantity in terms of its context. b. Interpret quadratic and square root expressions made of multiple parts as a combination of single entities to give meaning in terms of a context. ● NC.M2.A.CED.1: Create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. NC.M2.A.CED.2: Create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities. ● NC.M2.F-BF.3: Understand the effects of the graphical and tabular representations of a linear, quadratic, square root, and inverse variation function f with k · f(x) , ,) f(x) + k f(x + k) for specific values of k (both positive and negative). ● NC.M2.A.CED.3: Create systems of linear, quadratic, square root, and inverse variation equations to model situations in context. ● NC.M2.A.REI.1: Understand solving equations as a process of reasoning and explain the reasoning. Justify a chosen solution method and each step of the solving process for quadratic, square root and inverse variation equations using mathematical reasoning. ● NC.M2.A-REI.2: Solve and interpret one variable inverse variation and square root equations arising from a context, and explain how extraneous solutions may be produced. ● NC.M2.A-REI.11: Extend the understanding that the x -coordinates of the points where the graphs of two square root and/or inverse

•I can solve a square root function that results in a quadratic. •I can solve a simple rational function. •I can solve a rational function that results in a quadratic. •I can solve a system of equations graphically, both by hand and using technology. •I can solve a system of linear equations using substitution •Teachers may choose to review elimination, but it will not work with mixed systems. •I can solve a system of equations that include linear/quadratic, quadratic/quadratic, linear/square root, and square root/square root graphically, using technology. •I can solve a system of equations that include linear/quadratic, quadratic/quadratic, linear/square root, and square root/square root using substitution.			variation equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x), and approximate solutions using graphing technology or successive approximations with a table of values. ● NC.M2.F.IF.4: Interpret functions that arise in applications in terms of context. Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior. ● NC.M2.F.IF.7: Analyze functions using different representations. Analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior. ● NC.M2.F.IF.9: Analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior.

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2022-2023 Scope and Sequence
NC Math 2

SECOND NINE WEEKS	OVERVIEW
	NC Math 2 continues a student's study of algebraic and geometric concepts building upon middle school topics and NC Math 1. Students are developing knowledge to reach a higher level of understanding in new and previously learned topics, which include quadratics, exponentials, and systems of equations. New concepts within geometry are introduced including transformations, triangle properties and proofs, and trigonometry. Additionally, students are engaging in topics where they are encouraged to think, write, communicate, and solve real world scenarios, which includes making connections to other subjects.

UNIT	UNIT DURATION	PARENT/FAMILY RESOURCES	NORTH CAROLINA STANDARDS
Unit 4: Similarity & Congruence, Angles & Triangles **Learning Targets:** • I can define and name line segments, rays, and angles. •I can identify and solve types of angles including adjacent, vertical, linear pairs, complementary, supplementary, perpendicular. •I can prove that the sum of the interior angles in a triangle is 180 degrees. •I can solve for missing angles in a triangle numerically and algebraically. •I can recognize that an exterior angle of a triangle is equal to the sum of its remote interior angles. •I can identify the types of triangles. •I can recognize that the base angles of an isosceles triangle are congruent. •I can identify the midsegments of a triangle and recognize that they are parallel to	Approximately 12 Days	Similarity and Right Triangles: Video tutorials Extra practice Triangles and Congruence: Video tutorials Extra practice	**Understand similarity through transformations, including dilations, and use the properties of similarity** **to solve problems.** ● NC.M2.G-CO.9: (first three bullets) Prove theorems about lines and angles and use them to prove relationships in geometric figures including: ○ Vertical angles are congruent. ○ When a transversal crosses parallel lines, alternate interior angles are congruent. ○ When a transversal crosses parallel lines, corresponding angles are congruent. ● NC.M2.G-SRT.1: Understand similarity in terms of similarity transformations. Verify experimentally the properties of dilations with given center and scale factor: b. Verify experimentally the properties of dilations with given center and scale factor: The length of the image of a line segment is equal to the length of the line segment multiplied by the scale factor. c. The distance between the center of a dilation and any point on the image is equal to the scale factor multiplied by the distance between the dilation center and the corresponding point on the pre-image. d. Dilations preserve angle measure. ● NC.M2.G-SRT2a,b: Understand similarity in terms of transformations. a. Determine whether two figures are similar by specifying a sequence of transformations that will transform one figure into the other.

the 3rd side and half the length. •I can identify parallel lines and a transversal that intersects them. •I can identify interior, exterior, alternate, and consecutive angles. •I can determine if pairs of angles are congruent or supplementary based on theorems (corresponding, alternate interior, alternate exterior, consecutive interior). •I can recognize that points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment. •I can show that two triangles are congruent if and only if their corresponding parts are congruent. •I can justify the ASA, SAS, AAS, SSS, and HL postulates for triangle congruence. •I can use the above postulates to determine if two triangles are congruent. •I can identify corresponding parts of triangles that would complete the congruence using a given postulate. •I can use congruent triangles to justify why the bisector of an angle is equidistant from the sides of the angle. •I can use theorems about angles, sides, and triangles along with the triangle postulates to write a 2-column proof.			b. Use the properties of dilations to show that two triangles are similar when all corresponding pairs of sides are proportional and all corresponding pairs of angles are congruent. ● NC.M2.G-SRT3: Understand similarity in terms of transformations. Use transformations (rigid motions and dilations) to justify the AA criterion for triangles similarity, ● NC.M2.G-SRT4: (first bullet) Prove theorems involving similarity. Use similarity to solve problems and to prove theorems about triangles. ○ A line parallel to one side of a triangle divides the other two sides proportionally and its converse. ● NC.M2.G-CO10: (fourth bullet) Prove theorems about triangles and use them to prove relationships in geometric figures including: ○ The segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length. **Understand congruency through rigid motion transformations and use the properties of congruency to solve problems.** ● NC.M2.G-CO.6: Determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other. ● NC.M2.G-CO7: Use the properties of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. ● NC.M2.G-CO8: Use congruence in terms of rigid motions. Justify the ASA, SAS, and SSS criteria for triangle congruence. Use criteria for triangle congruence (ASA, SAS, SSS, HL) to determine whether two triangles are congruent. ● NC.M2.G-CO.9: (fourth and fifth bullets)Prove theorems about lines and angles and use them to prove relationships in geometric figures including: ○ Points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment. ○ Use congruent triangles to justify why the bisector of an angle is equidistant from the sides of the angle.

•I can use CPCTC to prove that angles or sides of triangles are congruent. •I can determine if two triangles are similar using the AA theorem. •I can justify the AA criterion for triangle similarity. •I can prove that figures are similar by showing their sides have the same ratio. •I can apply the side splitter theorem to similar triangles •I can relate similar figures back to dilations.			● NC.M2.G-CO10: (third bullet) Prove theorems about triangles and use them to prove relationships in geometric figures including: ○ The base angles of an isosceles triangle are congruent.
Unit 5: Trigonometry (Solving Right Triangles) **Learning Targets:** •I can simplify radical expressions using perfect squares or factor trees. •I can use Pythagorean theorem to solve for missing sides in a right triangle. •I can use special right triangles (45-45-90) to solve for a missing side. •I can derive the relationships in a 30-60-90 triangle. • I can use special right triangles (30-60-90) to solve for a missing side. •I can solve problems involving multiple triangles with missing sides using special right triangles. •I can identify the sides of right triangles as they relate to an acute angle (opposite, adjacent, hypotenuse). •I can define the three trigonometric ratios by comparing the ratios of	Approximately 13 Days	Similarity and Right Triangles: Video tutorials Extra practice	**Understand, prove, and use properties of triangles to solve problems**. ● NC.M2.G.CO.10: (first and second bullets) Prove theorems about triangles and use them to prove relationships in geometric figures including: ○ The sum of the measures of the interior angles of a triangle is 180 degrees. ○ An exterior angle of a triangle is equal to the sum of its remote interior angles. ● NC.M2.G.SRT.4: (second bullet) Use similarity to prove theorems about triangles. Use theorems about triangles to prove relationships in geometric figures. ○ Use the Pythagorean Theorem. Use proportional reasoning to develop relationships between corresponding parts of similar triangles. **Use these relationships to solve problems.** ● NC.M2.G-SRT.12: Define trigonometric ratios and solve problems involving right triangles. Develop properties of special right triangles (45-45-90 and 30-60-90) and use them to solve problems. ● NC.M2.G.SRT.6: Verify experimentally that the side ratios in similar right triangles are properties of the angle measures in the triangle, due to the preservation of angle measure in similarity. Use this discovery to develop

corresponding sides of similar right triangles in relation to an acute angle. •I can recognize that in similar right triangles the sine, cosine, and tangent ratios of corresponding angles are constant. •I can use trigonometric ratios to solve for a missing side in a right triangle. •I can use inverse trig ratios to solve for a missing angle in a right triangle. •I can identify angles of elevation and depression in a real world situation. •I can use right triangle trig to model and solve real world applications. •I can interpret the solution to a real world application including unit and evaluating reasonability.			definitions of the trigonometric ratios for acute angles. ● NC.M2.A.SSE.1a: Identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents. ● NC.M2.A.CED.1: Create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems. ● NC.M2.G.SRT.8: Use trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context.
Unit 6: **Probability** **Learning Targets:** •I can identify events, outcomes and sample spaces for a given situation (Ex. What is the sample space for rolling a die? (Ex. What is the sample space for randomly selecting one letter from the word MATHEMATICS?)(Ex. Describe different subsets of outcomes for rolling a die using a single category or characteristic.) •I can calculate basic probabilities from a situation or table	Approximately 10 days	Probability: Extra practice Video tutorials	**Understand, explain, and use conditional probabilities, the addition rule for probabilities, and the multiplication rules for probabilities.** ● NC.M2.S.IC.2: Use simulation to determine whether the experimental probability generated by sample data is consistent with the theoretical probability based on known information about the population. ● NC.M2.S.CP.1: Describe events as subsets of the outcomes in a sample space using characteristics of the outcomes or as unions, intersections and complements of other events. ● NC.M2.S.CP.3a: Develop and understand independence and conditional probability. a. Use a two-way table to develop an understanding of the conditional probability of a given B (written P(A|B)) as the likelihood that A will occur given that B has occurred. That is, P(A|B) is the fraction of event B's outcomes that also belong to event A. ● NC.M2.S.CP.3b: Develop and understand independence and conditional probability.

(probability = favorable/total) • I can explain the differences between experimental and theoretical probability, and how they are related through the law of large numbers (Ex. Sadie flipped a coin 10 times and got the following results: T, H, T, T, H, H, H, H, H, H. Her math partner Harold thinks that the next flip is going to result in tails because there have been so many heads in a row. Do you agree? Explain why or why not. •I can describe events as unions, intersections, and complements, disjoint (Ex. Describe the following subset of outcomes for choosing one card from a standard deck of cards as the intersection of two events: {queen of hearts, queen of diamonds – so Queen & Red is the intersection of these two events}. •I can use a Venn Diagram to represent outcomes and determine probabilities for unions, intersections, and complements of events •I can find the probability of the union of two events using the formula P(A or B) = P(A) + P(B) – P(A and B) (Ex. Given the situation of drawing a card from a standard deck of cards, calculate the probability of the following:			b. Understand that event A is independent from event B if the probability of event A does not change in response to the occurrence of event B. That is P(A|B) = P(A). ● NC.M2.S.CP.4: Represent data on two categorical variables by constructing a two-way frequency table of data. Interpret the two-way table as a sample space to calculate conditional, joint, and marginal probabilities. Use the table to decide if events are independent. ● NC.M2.S.CP.5: Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. ● NC.M2.S.CP.6: Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in context. ● NC.M2.S.CP.7: Apply the Addition Rule, P(A or B) = P(A) + P(B) - P(A and B), and interpret the answer in context. ● NC.M2.S.CP.8: Apply the general Multiplication Rule P(A and B) = P(A)P(A|B), and interpret the answer in context. Include the case where A and B are independent: P(A and B) = P(A)P(B)

•drawing a red card or a king •drawing a ten or a spade •drawing a four or a queen •drawing a black jack or a club •drawing a red queen or a spade) •I can describe what it means for two events to be independent. (Ex. Felix is a good chess player and a good math student. Do you think that the events “being good at playing chess” and “being a good math student” are independent or dependent? Justify your answer. • I can determine if two events are independent if the probability of A and B occurring together is the product of their probabilities P(A and B) = P(A)P(B). •(Ex. For the situation of drawing a card from a standard deck of cards, consider the two events of “draw a diamond” and “draw an ace.” Determine if these two events are independent. •I can create a two-way table from a set of data. •I can explain conditional probabilities in context of a situation. •I can determine conditional probabilities from a two-way table. •I can find conditional probabilities using the formula P(A|B) = P(A and B)/P(B). •I can find the conditional probability of A given B as the fraction			

of B's outcomes that also belong to A, and interpret the answer in context.			

Parent/Family Materials

These materials are designed to give parents support for each lesson in our NC Math 2 units. There are video tutorials as well as additional problems and answers for the topics that can be used for extra practice.