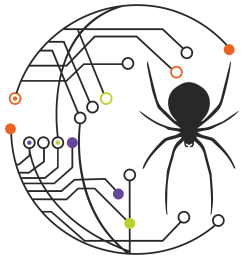

South Carolina High School Employability Credential

Essentials of Math IV

Practical Applications and Modeling

Standards Crosswalk and Pacing Guide

Essentials of Math IV - Practical Applications and Modeling
Pacing Guide

Coming soon!

Quarter	Standards	Topics
#1		
#2		
#3		
#4		

Essentials of Math IV - Practical Applications and Modeling
Standards Crosswalk

Link to all 2025 Math Standards

Refer to this document for the Big Ideas to be covered in the course.

Link to all Math Textbook Modules

Domain 1	**DATA, PROBABILITY, AND STATISTICAL REASONING**	
Performance Expectation	**Spider Learning Unit and Lesson**	**Spider Learning Textbook Module**
AM.DPSR.1. Summarize and interpret data represented in tables or graphs to make predictions. + AM.DPSR.1.1 Summarize and interpret trends to make predictions in real-world situations. Applications could include forecasting growth and decline of various career fields by interpreting data from charts and graphs, or predicting trends about population change that will affect employment rate.	Math A Unit 21 Lesson 4 Making Predictions about a Population Math B Unit 10 Lesson 2 Populations: Predictions and Inferences	
AM.DPSR.1. Summarize and interpret data represented in tables or graphs to make predictions. + AM.DPSR.1.2 Calculate and explain pay scale based on occupational outlook projections. Use student career path predictions to develop spreadsheets of occupational projections.	Math A Unit 24 Lesson 14 Five-Number Summaries in the Real World *(Content directly tied to **pay scale** and/or **occupational outlook projections** not found within lesson or e-book content. Cited lesson has potential to cover this since "real-world situations" are not explicitly defined.)*	

AM.DPSR.1. Summarize and interpret data represented in tables or graphs to make predictions. + AM.DPSR.1.3 Calculate and explain operating costs, including cost of materials, supplies, equipment, license fees, and insurance fees. Community members and educational business partners could provide estimated operational costs.		General Math Part 2 Unit 2 Lesson 8
AM.DPSR.1. Summarize and interpret data represented in tables or graphs to make predictions. + AM.DPSR.1.4 Construct and analyze charts that reflect current demographics in various industries. Use community information to determine industry needs in the area.		General Math Part 2 Unit 3 Lesson 7
AM.DPSR.2. Solve problems involving probability and probability models and use expected value to make informed decisions in real-world situations. + AM.DPSR.2.1 Determine the probability of simple and compound events in real-world situations. Probability Rules: general addition rule, general multiplication rule.	Math B Unit 12 Lesson 9 Introduction to Independent and Dependent Events Math B Unit 12 Lesson 13 Conditional Probability	
AM.DPSR.2. Solve problems involving probability and probability models and use expected value to make informed decisions in real-world situations.	Math B Unit 12 Lesson 6 Experimental Probability Math B Unit 12 Lesson 8 Odds	

+ AM.DPSR.2.2 Use probabilities to make and justify decisions about risk in real-world situations. Real-world applications could include analyzing insurance rates and utilizing risk analysis to develop a job safety analysis plan.		
AM.DPSR.2. Solve problems involving probability and probability models and use expected value to make informed decisions in real-world situations. + AM.DPSR.2.3 Calculate and analyze the expected value of a probability model (binominal, normal, and Poisson distributions) for a real-world situation to make decisions about fairness, payoff, and risk.	Math B Unit 12 Lesson 7 Theoretical Probability Math B Unit 12 lesson 14 Probability and Permutations *(Content within e-book/lessons does not explicitly cover **expected value**. Cited lessons do, however, cover relevant foundational probability concepts.)*	

Domain 2	**MEASUREMENT, GEOMETRY, AND SPATIAL REASONING**	
Performance Expectation	**Spider Learning Unit and Lesson**	**Spider Learning Textbook Module**
AM.MGSR.1. Apply trigonometric principles to solve real-world geometric situations involving inaccessible distances. + AM.MGSR.1.1 Apply sine, cosine, and tangent ratios and the Law of Sines and the Law of Cosines to discover distances		Geometry Part 3 Unit 1 Lesson 4
AM.MGSR.2. Critique the appropriateness of measurements in terms of precision, accuracy, and approximate error. + AM.MGSR.2.1 Determine dimensions by	Math A Unit 20 Lesson 11 Scale Drawings	

scaling plans or blueprints. Demonstrate an understanding of blueprints and drawings.		
AM.MGSR.2. Critique the appropriateness of measurements in terms of precision, accuracy, and approximate error. + AM.MGSR.2.2 Apply knowledge of fractions for reading a ruler to 1/ 16 inch to interpreting blueprints and measuring materials, for example (sheetrock, wood, flooring per box). Identify various measuring tools and demonstrate their use to verify precision, accuracy, and approximate error.	Math A Unit 1 Lesson 11 Convert Between Fractions and Decimals Math A Unit 2 Lesson 3 Solve Word Problems Involving Multiplication and Division of Fractions *(Content related to **reading a ruler/interpreting blueprints/measuring materials** does not appear to be explicitly covered within lesson or e-book content. Cited lessons do, however, cover real-world applications of fractions.)*	
AM.MGSR.2. Critique the appropriateness of measurements in terms of precision, accuracy, and approximate error. + AM.MGSR.2.3 Compare the metric and the British imperial systems of measurements used in industry.		Pre-Algebra Part 4 Unit 2 Lesson 15
AM.MGSR.3. Apply two- and three-dimensional representations, geometric transformations, and scale models in planning, designing, and constructing solutions to real-world situations. + AM.MGSR.3.1 Calculate lengths utilizing the Pythagorean Theorem. Use a blueprint or scale drawing of a house to determine the amount of materials to be purchased. Identify functions of various plumbing components.	Math A Unit 33 Lesson 6 Finding the Length of a Leg in a Right Triangle Math A Unit 33 Lesson 7 Finding Distance Using the Pythagorean Theorem	

AM.MGSR.3. Apply two- and three-dimensional representations, geometric transformations, and scale models in planning, designing, and constructing solutions to real-world situations. + AM.MGSR.3.2 Apply the concepts of area, volume, scale factors, and scale drawings to applied problems for a specific project. Calculate estimates for construction, house planning, or repair projects.	Math A Unit 9 Lesson 13 Find the Volume of Right Rectangular Prisms and Cubes Math A Unit 24 Lesson 12 Finding Volume of Prisms and Cylinders	
AM.MGSR.3. Apply two- and three-dimensional representations, geometric transformations, and scale models in planning, designing, and constructing solutions to real-world situations. + AM.MGSR.3.3 Determine the level of precision and the appropriate tools for taking the measurements in constructing a two-dimensional visual representation of a three-dimensional object or structure. Create drawings to represent a given solid structure, using technology where appropriate, and determine which measurements cannot be taken directly and must be calculated based on other measurements when constructing two dimensional and three-dimensional figures.	Math A Unit 34 Lesson 6 Dilating Figures on the Coordinate Plane Math A Unit 34 Lesson 14 Using Transformations to Place Figures in Standard Position *(These lessons cover the transformations and 2D figure manipulation part of the standard but available content within e-book/lessons does not fully cover the **3D construction, measurement precision, or tool selection aspects**.)*	
AM.MGSR.3. Apply two- and three-dimensional representations, geometric transformations, and scale models in planning, designing, and constructing solutions to real-world situations.	Math A Unit 19 Lesson 8 Area of Isosceles Triangles Math A Unit 19 Lesson 9 Area of Obtuse	

+ AM.MGSR.3.4 Apply Heron's Formula for finding the area of a triangular region.	Triangles *(Content likely covers Heron's Formula, though not explicitly stated within data provided.)*	
AM.MGSR.4. Apply two- and three-dimensional representations in coordinate systems to find solutions to real-world situations. + AM.MGSR.4.1 Plot coordinates on a three-dimensional Cartesian coordinate system and use relationships between coordinates to solve design problems. Consider using dynamic geometric software to model real-world situations and design solutions to real-world situations.		Algebra 2 Part 1 Unit 3 Lesson 12
AM.MGSR.4. Apply two- and three-dimensional representations in coordinate systems to find solutions to real-world situations. + AM.MGSR.4.2 Use technology and other tools to explore the results of simple transformations using three-dimensional coordinates, including translations in the x, y, and/or z directions; rotations of 90º, 180º, or 270º about the x, y, and z axes; reflections over the xy, yz, and xz planes; and dilations from the origin.		Algebra 2 Part 1 Unit 3 Lesson 11
AM.MGSR.5. Use vectors and matrices to represent, organize, and describe data to solve problems in mathematical and real-world situations. + AM.MGSR.5.1 Apply vectors to		Trigonometry Part 2 Unit 3 Lesson 6

mathematical and real-world situations by recognizing vectors as mathematical objects having both magnitude and direction. Solve problems using vectors in areas such as transportation, computer graphics, and the physics of force and motion.		
AM.MGSR.5. Use vectors and matrices to represent, organize, and describe data to solve problems in mathematical and real-world situations. + AM.MGSR.5.2 Use and apply matrices to represent geometric transformations in real-world situations.		Algebra 2 Part 2 Unit 1 Lesson 5

Domain 3	**NUMERICAL REASONING**	
Performance Expectation	**Spider Learning Unit and Lesson**	**Spider Learning Textbook Module**
AM.NR.1. Solve problems using fractions, percents, and ratios for real-world situations involving linear, quadratic, exponential, and absolute functions + AM.NR.1.1 Apply numerical reasoning to real-world situations involving percent increase and decrease.	Math A Unit 17 Lesson 7 Solve Percent Problems Using Proportions Math A Unit 17 Lesson 9 Solve Real-World Ratio and Percent Problems Using Proportions	

Domain 4	**PATTERNS, ALGEBRA, AND FUNCTIONAL REASONING**	
Performance Expectation	**Spider Learning Unit and Lesson**	**Spider Learning Textbook Module**

AM.PAFR.1. Create and analyze mathematical models to make decisions on real-world situations. + AM.PAFR.1.1 Use exponential functions to model change in a variety of financial situations. Use exponential models related to earning, investing, spending, and borrowing money.	Math B Unit 7 Lesson 1 Introduction to Exponential Growth and Decay Math B Unit 7 Lesson 2 Applications of Exponential Growth and Decay	
AM.PAFR.1. Create and analyze mathematical models to make decisions on real-world situations. + AM.PAFR.1.2 Compare the various means of paying for an automobile, including leasing, purchasing by cash, and purchasing by loan. Investigate financing options for leasing and purchasing and the difference between finance companies and banks.		General Math Part 2 Unit 2 Lesson 3
AM.PAFR.1. Create and analyze mathematical models to make decisions on real-world situations. + AM.PAFR.1.3 Use sequences to represent simple and compound interest and depreciation.		General Math Part 3 Unit 3 Lesson 2
AM.PAFR.2. Analyze and solve application-based problems relating to direct, inverse, and joint variation. + AM.PAFR.2.1 Apply variations to mathematical and real-world situations to describe troubleshooting in business and industrial applications. Applications could include calculating the proper size	Math A Unit 16 Lesson 8 Define a Direct Variation Model Math A Unit 16 Lesson 9 Solve Applications Involving Direct Variation	

of a water service line and drainage fixture units for a given pipe size.		
AM.PAFR.2. Analyze and solve application-based problems relating to direct, inverse, and joint variation. + AM.PAFR.2.2 Utilize mathematical skills for troubleshooting in business and industrial applications.	Math A Unit 16 Lesson 7 Identify a Direct Variation Model from a Graph	
AM.PAFR.3. Analyze and apply linear programming to mathematical and real-world situations. + AM.PAFR.3.1 Calculate the values of the variables that maximize or minimize the objective function, given four or more constraints.	Math A Unit 11 Lesson 7 Write and Solve Inequalities that Represent Constraints in Real-World and Mathematical Problems Math A Unit 16 Lesson 12 Construct and Solve Linear Inequalities to Solve Real-World Applications	