5th Grade Crosswalk: Mathematics		
Oklahoma Academic Standards and Objectives		**DoD STARBASE Lessons**
Numbers and Operations (N)		
5.N.1 Divide multi-digit numbers and solve real-world and mathematical problems using arithmetic.		
5.N.1.1 Estimate solutions to division problems in order to assess the reasonableness of results.		**Basic Measurement – Length, Liquid Volume, and Mass**
5.N.1.2 Divide multi-digit numbers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.		**Numbers and Number Relationships: Eggbert Extension Activity**
5.N.1.3 Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution.		**Basic Measurement – Length, Liquid Volume, and Mass** **Numbers and Number Relationships: Eggbert Extension Activity**
5.N.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.		**Basic Measurement – Length, Liquid Volume, and Mass** **Engineering Design Process: Eggbert** **Numbers and Number Relationships: Eggbert Extension Activity**
5.N.2 Read, write, represent, and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.		
5.N.2.1 Represent decimal fractions (e.g., $\frac{1}{10}$, $\frac{1}{100}$) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make connections between fractions and decimals.		**Basic Measurement – Length, Liquid Volume, and Mass** **Data Analysis: Rocket Launch** **Numbers & Number Relationships: Eggbert Extension Activity**
5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions.		**Basic Measurement – Length, Liquid Volume, and Mass** **Data Analysis: Rocket Launch** **Numbers & Number Relationships: Eggbert Extension Activity**

5th Grade Crosswalk: Mathematics		
5.N.2.3 Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line.		**Basic Measurement – Length, Liquid Volume, and Mass** **Geometry: Fly on the Ceiling**
5.N.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts.		**Basic Measurement – Length, Liquid Volume, and Mass** **Numbers & Number Relationships: Eggbert Extension Activity**
5.N.3 Add and subtract fractions with like and unlike denominators, mixed numbers and decimals to solve real-world and mathematical problems.		
5.N.3.1 Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results.		**Basic Measurement – Length, Liquid Volume, and Mass** **Data Analysis: Rocket Launch** **Numbers & Number Relationships: Eggbert Extension Activity**
5.N.3.2 Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods).		**Data Analysis: Basic Graphing** **Numbers & Number Relationships: Eggbert Extension Activity** **Geometry: Fly on the Ceiling**
5.N.3.3 Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data.		**Basic Measurement – Length, Liquid Volume, and Mass** **Data Analysis: Basic Graphing** **Data Analysis: Rocket Launch** **Numbers & Number Relationships: Eggbert Extension Activity**
5.N.3.4 Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.		**Basic Measurement – Length, Liquid Volume, and Mass** **Numbers & Number Relationships: Eggbert Extension Activity**

5th Grade Crosswalk: Mathematics		
Algebraic Reasoning and Algebra (A)		
5.A.1 Describe and graph patterns of change created through numerical patterns.		
5.A.1.1 Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems.		**Basic Measurement – Length, Liquid Volume, and Mass** **Introduction to Motion and Force: Newton's Laws of Motion** **Rocketry Introduction** **Straw Rockets** **Data Analysis: Rocket Launch**
5.A.1.2 Use a rule or table to represent ordered pairs of whole numbers and graph these ordered pairs on a coordinate plane, identifying the origin and axes in relation to the coordinates.		**Data Analysis: Basic Graphing** **Data Analysis: Rocket Launch** **Geometry: Fly on the Ceiling**
5.A.2 Understand and interpret expressions, equations, and inequalities involving variables and whole numbers, and use them to represent and evaluate real-world and mathematical problems.		
5.A.2.1 Generate equivalent numerical expressions and solve problems involving whole numbers by applying the commutative, associative, and distributive properties and order of operations (no exponents).		**Introduction to Motion and Force: Newton's Laws of Motion** **Data Analysis: Rocket Launch**
5.A.2.2 Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.		**Introduction to Motion and Force: Newton's Laws of Motion** **Rocketry Introduction** **Data Analysis: Rocket Launch**
5.A.2.3 Evaluate expressions involving variables when values for the variables are given.		**Introduction to Motion and Force: Newton's Laws of Motion** **Rocketry Introduction** **Data Analysis: Rocket Launch**

5th Grade Crosswalk: Mathematics		
Geometry and Measurement (GM)		
5.GM.1 Describe, classify, and draw representations of two- and three-dimensional figures.		
5.GM.1.1 Describe, classify and construct triangles, including equilateral, right, scalene, and isosceles triangles. Recognize triangles in various contexts.		**Geometry: Fly on the Ceiling**
5.GM.1.2 Describe and classify three-dimensional figures including cubes, rectangular prisms, and pyramids by the number of edges, faces or vertices as well as the shapes of faces.		**3-D CAD: PTC Module and Satellite Station**
5.GM.1.3 Recognize and draw a net for a three-dimensional figure (e.g., cubes, rectangular prisms, pyramids).		**3-D CAD: PTC Module and Satellite Station**
5.GM.2 Understand how the volume of rectangular prisms and surface area of shapes with polygonal faces are determined by the dimensions of the object and that shapes with varying dimensions can have equivalent values of surface area or volume.		
5.GM.2.1 Recognize that the volume of rectangular prisms can be determined by the number of cubes (n) and by the product of the dimensions of the prism ($a \times b \times c = n$). Know that rectangular prisms of different dimensions (p, q, and r) can have the same volume if $a \times b \times c = p \times q \times r = n$.		**Basic Measurement – Length, Liquid Volume, and Mass**
5.GM.2.2 Recognize that the surface area of a three-dimensional figure with rectangular faces with whole numbered edges can be found by finding the area of each component of the net of that figure. Know that three-dimensional shapes of different dimensions can have the same surface area.		**Basic Measurement – Length, Liquid Volume, and Mass**
5.GM.2.3 Find the perimeter of polygons and create arguments for reasonable values for the perimeter of shapes that include curves.		**Basic Measurement – Length, Liquid Volume, and Mass**
5.GM.3 Understand angle and length as measurable attributes of real-world and mathematical objects. Use various tools to measure angles and lengths.		
5.GM.3.1 Measure and compare angles according to size.		**Geometry: Fly on the Ceiling**
5.GM.3.2 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or 1/16-inch.		**Basic Measurement – Length, Liquid Volume, and Mass** **Straw Rockets** **Data Analysis: Rocket Launch**

5th Grade Crosswalk: Mathematics		
5.GM.3.3 Recognize and use the relationship between inches, feet, and yards to measure and compare objects.		**Basic Measurement – Length, Liquid Volume, and Mass**
5.GM.3.4 Recognize and use the relationship between millimeters, centimeters, and meters to measure and compare objects.		**Basic Measurement – Length, Liquid Volume, and Mass** **Straw Rockets** **Data Analysis: Rocket Launch**
Data and Probability (D)		
5.D.1 Display and analyze data to find the range and measures of central tendency (mean, median, and mode).		
5.D.1.1 Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a "leveling out" or central balance point of the data.		**Data Analysis: Rocket Launch**
5.D.1.2 Create and analyze line and double-bar graphs with whole numbers, fractions, and decimals increments.		**Data Analysis: Basic Graphing** **Data Analysis: Rocket Launch**