Mathematics
Unit 4: Geometry and Measurement

Essential Understandings	▪ Lines are the fundamental building blocks of polygons. ▪ Different tools are used to measure different things. ▪ Standard units provide common language for communicating measurement.
Essential Questions	▪ How can one describe possible relationships between lines? ▪ How can one use attributes to recognize and classify polygons and three dimensional figures? ▪ What is an angle? ▪ What is symmetry? ▪ How can one find perimeter? ▪ How can one find area? ▪ How can one measure length? ▪ How does one convert units within the standard measurement system (i.e., inches to feet)? ▪ How does one measure capacity? ▪ How does one measure volume? ▪ How can one mark the passage of time? ▪ How can one measure temperature? ▪ How does one measure the weight of an object?
Essential Knowledge	▪ Lines can be intersecting, parallel, or perpendicular. ▪ Relationships between lines can be used to identify and classify polygons. ▪ One can use attributes to determine how polygons and three-dimensional figures are alike and different. ▪ An object is symmetrical when one half is the mirror image of the other half. ▪ Volume is measured in cubic units. ▪ Weight is the measure of the heaviness of an object.
Vocabulary	▪ <u>Terms</u>: ○ Fahrenheit, Celsius, weight, ounces (liquid and solid), pints, cups, gallons, quarts, pounds, kilograms, grams, relative size, foot/feet, yards, volume, angle, perpendicular lines, intersecting lines, parallel lines, right angle, pentagon, metric, line symmetry, line of symmetry, grid, line segment, rays, convert/conversion, regular and irregular polygons, open and closed shapes

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Essential Skills	▪ Recognize and explain the relationship between lines (intersecting, parallel, and perpendicular). (I) ▪ Identify figures as polygons, non-polygons, and open or closed shapes. (I, R, A) ▪ Identify edges, vertices and right angles in two-dimensional shapes. (I, R, A) ▪ Identify and classify two-dimensional shapes according to the number of vertices and by number, length and shape of sides (circle, triangle, rectangle, square, rhombus, trapezoid, pentagon, and hexagon).(I, R, A) ▪ Tell whether a given angle is greater or smaller than a right angle. (I, R, A) ▪ Form shapes by combining and taking apart other shapes. (I, R, A) ▪ Identify, describe, and draw symmetrical objects. (I, R) ▪ Recognize line symmetry in figures. (I, R) ▪ Identify congruent figures. (R, A) ▪ Find the perimeter and the area of rectangles using grids. (R, A) ▪ Recognize that a number without a unit is not a measurement and that an appropriate unit must always be attached. (I, R) ▪ Measure accurately with metric and standard unit rulers to the nearest half inch or centimeter. (I, R, A) ▪ Measure the perimeter of regular polygons to the nearest half inch and centimeter. (I, R, A) ▪ Recognize and estimate the relative sizes of inches, feet, and centimeters. (I, R) ▪ Convert inches to feet, feet to yards, and inches to yards. (I, R, A) ▪ Find the perimeter and area of rectangles using grids. (I, R, A) ▪ Measure capacity in gallons, quarts, pints, cups, and ounces. (I, R, A) ▪ Use manipulatives to find the volume of regular prisms. (I) ▪ Use an analog clock and a digital clock to tell time to the nearest minute. (I, R, A) ▪ Find temperature in Fahrenheit and Celsius to 1 degree. (I, R, A) ▪ Measure the weight of an object in ounces, pounds, grams, and kilograms. (I, R, A)

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Related Maine Learning Results	B. Data Measurement and Approximation B1.Students understand and use measurement of time and temperature. a. Select appropriate tools and units for these measures. b. Solve and justify problems with these measures. C. Geometry Geometric Figures C1.Students identify, describe, and classify familiar two-dimensional shapes. a. Describe and classify two-dimensional shapes according to the number of vertices and by number, length and shape of sides. b. Know how to put shapes together and take them apart to form other shapes. c. Identify edges, vertices, and right angles in two-dimensional shapes. d. Tell whether a given angle is greater or smaller than a right angle. C2.Students understand how to find the distance around a figure. a. Calculate and measure the distance around a figure whose perimeter is comprised of straight edges.
NECAP	NECAP Data, Probability, and Statistics/Geometry and Measurement M (G & M) 3-7 Measures and uses units of measures appropriately and consistently, and makes conversions with systems when solving problems across the content standards. NECAP includes measurements of length (inches, feet, centimeters, meters), time (hours and minutes), temperature (degrees Celsius and degrees Fahrenheit), capacity (quart), mass (kilogram and gram), and weight (pound). Number and Operations M (N & O) 3-4 Accurately solves problems involving addition and subtraction with and without regrouping; the concept of multiplication; and addition or subtraction of decimals (in the context of money).