Blackwater Community School
Curriculum Map 2015-2016
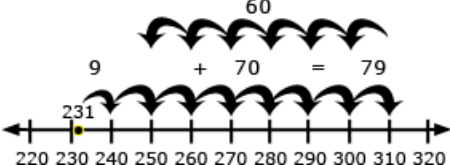
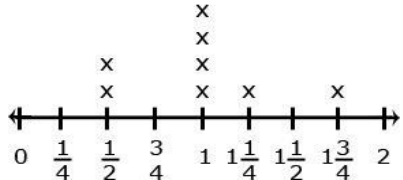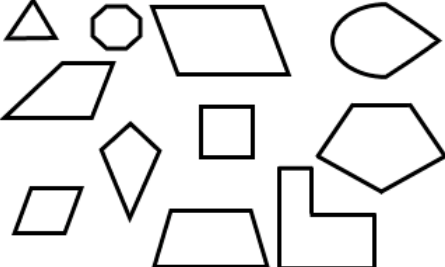| Third Grade Quarter 4					
Module 7: Geometry and Measurement Word Problems **Approximately 40 Days – Begin around March 22nd** This 40-day final module of the year offers students intensive practice with word problems, as well as hands-on investigation experiences with geometry and perimeter. The module begins with solving one- and two-step word problems based on a variety of topics studied throughout the year, using all four operations. Next students explore geometry. Students tessellate to bridge geometry experience with the study of perimeter. Line plots, familiar from Module 6, help students draw conclusions about perimeter and area measurements. Students solve word problems involving area and perimeter using all four operations. The unit concludes with a set of engaging lessons that briefly review the fundamental Grade 3 concepts of fractions, multiplication, and division.					
Major Clusters:	**3.OA.D – Solve problems involving the four operations, and identify and explain patterns in arithmetic.**				
Supporting Clusters:	3.MD.B – Represent and interpret data. 3.MD.D – Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. 3.G.A – Reason with shapes and their attributes.				
Vocabulary	Attribute, Diagonal, Perimeter, Property, Regular polygon, Tessellate, Tetrominoes				

Domain	Cluster	Standard	Arizona's College and Career Ready Standards	Explanations & Examples	Notes & Resources
3.OA	D	8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	Students should be exposed to multiple problem-solving strategies (using any combination of words, numbers, diagrams, physical objects or symbols) and be able to choose which ones to use. **Examples**: • Jerry earned 231 points at school last week. This week he earned 79 points. If he uses 60 points to earn free time on a computer, how many points will he have left? o A student may use the number line above to describe his/her thinking, o "231 + 9 = 240 so now I need to add 70 more. 240, 250 (10	**Engage NY** M7 Lessons 1-3 **enVision** Topic 3

Domain	Cluster	Standard	Arizona's College and Career Ready Standards	Explanations & Examples	Notes & Resources
			3.MP.1. Make sense of problems and persevere in solving them. *3.MP.2.* Reason abstractly and quantitatively. *3.MP.4.* Model with mathematics. *3.MP.5.* Use appropriate tools strategically.	more), 260 (20 more), 270, 280, 290, 300, 310 (70 more). Now I need to count back 60. 310, 300 (back 10), 290 (back 20), 280, 270, 260, 250 (back 60)." ○ A student writes the equation, 231 + 79 – 60 = m and uses rounding ○ (230 + 80 – 60) to estimate. ○ A student writes the equation, 231 + 79 – 60 = m and calculates 79-60 = 19 and then calculates 231 + 19 = m. • The soccer club is going on a trip to the water park. The cost of attending the trip is $63. Included in that price is $13 for lunch and the cost of 2 wristbands, one for the morning and one for the afternoon. Write an equation representing the cost of the field trip and determine the price of one wristband. | w	w	13
63			 The above diagram helps the student write the equation, w + w + 13 = 63. Using the diagram, a student might think, "I know that the two wristbands cost $50 ($63-$13) so one wristband costs $25." To check for reasonableness, a student might use front end estimation and say 60-10 = 50 and 50 ÷ 2 = 25. When students solve word problems, they use various estimation skills which include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of solutions. • Estimation strategies include, but are not limited to: ○ using benchmark numbers that are easy to compute ○ front-end estimation with adjusting (using the highest place value and estimating from the front end making adjustments to the estimate by taking into account the remaining amounts) rounding and adjusting (students round down or round up and then adjust their estimate depending on how	

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				much the rounding changed the original values)	
3.MD	B	4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters. *3.MP.1.* Make sense of problems and persevere in solving them. *3.MP.4.* Model with mathematics. *3.MP.6.* Attend to precision.	Students in second grade measured length in whole units using both metric and U.S. customary systems. It's important to review with students how to read and use a standard ruler including details about halves and quarter marks on the ruler. Students should connect their understanding of fractions to measuring to one-half and one-quarter inch. Third graders need many opportunities measuring the length of various objects in their environment. Some important ideas related to measuring with a ruler are: • The starting point of where one places a ruler to begin measuring • Measuring is approximate. Items that student's measure will not always measure exactly ¼, ½ or one whole inch. Students will need to decide on an appropriate estimate length. • Making paper rulers and folding to find the half and quarter marks will help students develop a stronger understanding of measuring length Students generate data by measuring and create a line plot to display their findings. An example of a line plot is shown below: 	**Engage NY** M7 Lessons 18-22 **enVision** Topic 16
3.MD	D	8	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or	Students develop an understanding of the concept of perimeter by walking around the perimeter of a room, using rubber bands to represent the perimeter of a plane figure on a geoboard, or tracing around a shape on an interactive whiteboard. They find the perimeter of objects; use addition to find perimeters; and recognize the patterns that exist when finding the sum of the lengths and widths of rectangles.	**Engage NY** M7 Lessons 10-30 **enVision** Topic 13

Domain	Cluster	Standard	Arizona's College and Career Ready Standards	Explanations & Examples	Notes & Resources
			with the same area and different perimeters. *3.MP.1.* Make sense of problems and persevere in solving them. *3.MP.4.* Model with mathematics. *3.MP.7.* Look for and make use of structure.	Students use geoboards, tiles, and graph paper to find all the possible rectangles that have a given perimeter (e.g., find the rectangles with a perimeter of 14 cm.) They record all the possibilities using dot or graph paper, compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles. Given a perimeter and a length or width, students use objects or pictures to find the missing length or width. They justify and communicate their solutions using words, diagrams, pictures, numbers, and an interactive whiteboard. Students use geoboards, tiles, graph paper, or technology to find all the possible rectangles with a given area (e.g. find the rectangles that have an area of 12 square units.) They record all the possibilities using dot or graph paper, compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles. Students then investigate the perimeter of the rectangles with an area of 12. | Area	Length	Width	Perimeter
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12 sq. in.	1 in.	12 in.	26 in.
12 sq. in.	2 in.	6 in.	16 in.
12 sq. in	3 in.	4 in.	14 in.
12 sq. in	4 in.	3 in.	14 in.
12 sq. in	6 in.	2 in.	16 in.
12 sq. in	12 in.	1 in.	26 in.	 The patterns in the chart allow the students to identify the factors of 12, connect the results to the commutative property, and discuss the differences in perimeter within the same area. This chart can also be used to investigate rectangles with the same perimeter. It is important to include squares in the investigation.	

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3.G	A	1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. *3.MP.5.* Use appropriate tools strategically. *3.MP.6.* Attend to precision. *3.MP.7.* Look for and make use of structure.	In third grade, students identify and draw triangles, quadrilaterals, pentagons, and hexagons. Third graders build on this experience and further investigate quadrilaterals (technology may be used during this exploration). Students recognize shapes that are and are not quadrilaterals by examining the properties of the geometric figures. They conceptualize that a quadrilateral must be a closed figure with four straight sides and begin to notice characteristics of the angles and the relationship between opposite sides. Students should be encouraged to provide details and use proper vocabulary when describing the properties of quadrilaterals. They sort geometric figures (see examples below) and identify squares, rectangles, and rhombuses as quadrilaterals. 	**Engage NY** M7 Lessons 4-30 **enVision** Topic 11