Mathematics

Topic Name: Topic 15: Attributes of Two-Dimensional Shapes

            Topic 16: Solve Perimeter Problems

Resource: enVision Math 2.0, Pearson, 2016

Duration: April

            Topic 15 (6 days)

            Topic 16 (8 days)

Enduring Understandings

Topic 15

- Quadrilaterals can be described and classified by their sides and angles.
- Shapes can be classified by their attributes.
- Quadrilaterals can be classified by their attributes.
- Good math thinkers are careful about what they write and say, so their ideas about math are clear.

Topic 16

- The distance around a figure is its perimeter.
- To find the perimeter of a polygon, add the lengths of the sides.
- Polygons with the same perimeter may have different areas.
- Polygons with the same area may have different perimeters.
- Good math thinkers know how to think about words and numbers to solve problems.

Essential Questions
Topic 15

- How can two-dimensional shapes be described, analyzed, and classified?
- What are some attributes of quadrilaterals?
- How can you describe different groups of shapes?
- How can you analyze and compare shapes?
- How can you be precise when solving problems involving shapes?

Topic 16
- How can perimeter be measures and found?
- How can a perimeter be measured and found?
- How do you find the perimeter?
- How can you find perimeters of common shapes?
- How can you find an unknown side length from a perimeter?
- Can rectangles have different areas but the same perimeter?
- How can you use reasoning when solving a problem involving shapes?

Focus of Standards			
Student Outcomes **Topic 15** ● I can identify quadrilaterals and use attribute to describe them. ● I can classify shapes in several ways based on how they are alike and how they are different. ● I can analyze and compare quadrilaterals and group them by attributes. ● I can be precise when solving math problems. **Topic 16** ● I can find the perimeter of different polygons. ● I can find the perimeter of polygons with common shapes. ● I can find the unknown length of a polygon by using a known perimeter.	**Skills** ● Solving addition, subtraction, multiplication, and division problems ● Understanding concepts ● Reasoning	**Assessment** **Formative** ● Diagnostic assessment ● Study Island ● Exit tickets ● Round Robin group work 　○ Open ended questions 　○ May/may not be game activity ● Analysis of student	**Resources** **Texts** ● enVision math 2.0 **Digital** ● Student/Teacher eText ● Interactive math story ● Home-school connection **Classroom Math Materials**

- I can understand the relationship of shapes with the same perimeter and different areas.
- I can understand the relationship of shapes with the same area and different perimeter.
- I can understand the relationship between numbers to simplify and solve problems involving perimeter.

| | | homework | Quadrilaterals |
| | | • Class polls | • Colored pencils |

- homework
- Class polls
  - Show of hands: 1 finger ok, 2 fingers need help, 3 fingers lost
- One thing I learned/One thing I need work on

Summative
- End topic tests
- Group topic assessment
- EOY test
- SGO tests

Benchmark
- Diagnostic assessment
- Pearson benchmark tests
- PARCC test

Alternative
- Work paper from tests will also be graded for additional points if reasoning is clear and correct, even if

- Quadrilaterals
- Colored pencils
- Crayons
- Set of assorted triangles
- Large sheet of paper
- Grid paper
- Rulers
- Index cards
- Centimeter or one inch grid paper
- Paper clips
- Construction paper
- Scissors
- A straightedge
- Various hand-draw polygons

		answer is wrong ● One on one conferencing ● Oral presentation on math strand ● Weekly time capsule:summary of what was learned ● Topic Pattern search: find the thread in topic ● Crosswords with math vocab	

Vocabulary
Topic 15
polygon, side, quadrilateral, angle, vertex, trapezoid, parallel sides, parallelogram, rectangle, right angle, rhombus, square, convex, concave
Topic 16
perimeter, equilateral triangle

NJ Student Learning Standards: Math
Topic 15
Geometry
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.
Measurement and Data
3.MD.C.5b Recognize area as an attribute of plane figures and understand concepts of area measurement. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
Topic 16
Measurement and Data
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 with the same area and different perimeters.

3.MD.C.7b Relate area to the operations of multiplication and addition. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

Standards for Mathematical Practice
MP1. Make sense of problems and persevere in solving them.
MP2. Reason abstractly and quantitatively.
MP3. Construct viable arguments and critique the reasoning of others.
MP4. Model with mathematics.
MP5. Use appropriate tools strategically.
MP6. Attend to precision.
MP7. Look for and make use of structure.
MP8. Look for and express regularity in repeated reasoning.

Career Ready Practices
CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

NJSLS Technology Standards

8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue.

Interdisciplinary Connections and Activities
NJSLS for ELA and Science are introduced, developed, and practiced in the context of learning math content and engaging in mathematical practices.
ELA Standards

- RL.3.1. Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RI.3.3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
- RI.3.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

Science

- 3-PS2-2 Science findings are based on recognizing patterns.
- 3-LS2-1 Construct an argument with data, evidence and/or a model.
- 3-LS3-2 Use evidence (eg., observations, patterns) to support an explanation.

NJSLS: 21st Century Life and Careers
Key Subjects and 21st Century: Themes Mastery of key subjects and 21st century themes is essential to student success. Key subjects include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics. In addition, schools must promote an understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into key subjects:
• Global Awareness
• Financial, Economic, Business and Entrepreneurial Literacy

9.1.4.A.2 Identify potential sources of income
9.1.4.C.5 Determine the relationship among income, expense and interest
9.1.4.D.2 Explain what it means to "invest".

Integrated Differentiation/Accommodations/Modifications for Mathematics *(Alternate Modes of Instruction and Support)*		
Modifications to Support Gifted and Talented Students	**Modifications to Support English Language Learners**	**Modifications to Support Our Learners (Students with IEPs/504s and At-Risk Learners)**
Provide appropriate challenge for wide ranging skills and development areas. Participate in inquiry and project-based learning units of study Assigning roles within partnerships Differentiated supports: content, process, product, environment	Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary) Pair visual prompts with verbal presentations Front load and immerse students in literacy and language experiences related to content Provide students with visual models, sentence stems, concrete objects, and hands-on materials. Model procedures for life skills. Collaboration between ELL and general education teacher to maximize learning	Review student individual educational plan and/or 504 plan. Establish procedures for accommodations and modifications for assessments as per IEP/504. Establish procedures for modification of classwork and homework as per IEP/504. Modify classroom environment to support academic and physical needs of the students as per IEP/504. Provide appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team. Differentiation through content, process, product, environment Provide Title I services to students not meeting academic standards in ELA and/or Math. Provide instructional adaptations and interventions in the general education classroom. Modify classroom environment to support student needs. Differentiated instruction Basic Skills

		Intensive individual intervention

Sources
New Jersey Student Learning Standards (2016) http://www.state.nj.us/education/cccs/2016/math/standards.pdf
New Jersey Student Learning Standards: Technology (2014) - http://www.state.nj.us/education/cccs/2014/tech/8.pdf
New Jersey Student Learning Standards: ELA (2014) - https://www.state.nj.us/education/cccs/2016/ela/g03.pdf
New Jersey Science and Engineering Practices - https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf
New Jersey 21st Century Life and Careers 9.1 - https://www.state.nj.us/education/cccs/2014/career/91.pdf
Pearson enVision 2.0 (2016) https://www.pearsonrealize.com/index.html#/