Mathematics

Topic Name: Topic 14: Graph Points on the Coordinate Plane

Topic 15: Algebra: Analyze Patterns and Relationships

Topic 16: Geometric Measurement: Classify Two-Dimensional Figures

Resource: enVision Math 2.0, Pearson, 2016

Duration: May

Topic 14 (6 days)

Topic 15 (6 days)

Topic 16 (6 days)

Enduring Understandings

Topic 14

- The coordinate system uses two perpendicular number lines intersecting at 0 to name the location of points in the plane.
- A coordinate grid has an x-axis and a y-axis that can be used to locate points in two dimensions.
- Points that lie on a line can be connected and extended to solve problems.
- Good math thinkers know how to think about words and numbers to solve problems.

Topic 15

- Two patterns can be extended using the same rule and there will be a relationship between the patterns.
- Two patterns can be extended using rules and there will be a relationship between the patterns.
- Analyze patterns and graph ordered pairs generated from number sequences.
- Good math thinkers make sense of problems and think of ways to solve them. If they get stuck, they don't give up.

Topic 16

- Triangles are classified by their sides and by their angles.
- Quadrilaterals are classified by their sides and by their angles.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.

Essential Questions

Topic 14

- How are points plotted?
- How are relationships shown on a graph?
- How do YOu name a point on a coordinate grid?
- How do you graph a point on a coordinate grid?
- How can you use ordered pairs to solve a problem?
- How can you use reasoning to solve a mathematical problem?

Topic 15

- How can number patterns be analyzed and graphed?
- How can number patterns and graphs be used to solve problems?
- How can you solve problems involving numerical patterns?
- How can you identify relationships between points?
- How can you generate and graph numerical patterns?
- How can you make sense of a problem and persevere in solving it?

Topic 16

- How can triangles and quadrilaterals be described, classified, and named?
- How can you classify triangles?
- What are some properties of quadrilaterals?
- How are special quadrilaterals related to each other?

- How can you construct arguments?

Focus of Standards

Student Outcomes	Skills	Assessments	Resources
Topic 14 ● I can locate points on a coordinate grid. ● I can graph points on a coordinate grid. ● I can solve real-world problems by graphing points. ● I can use reasoning to solve problems. ● I can multiply multi-digit whole numbers. **Topic 15** ● I can analyze numerical patterns. ● I can use tables to identify relationships between patterns. ● I can analyze patterns and graph ordered pairs generated from number sequences. ● I can make sense of problems and keep working if I get stuck. ● I can multiply multi-digit whole numbers. **Topic 16** ● I can classify triangles by the angles and sides. ● I can classify quadrilaterals by their properties.	● Solving addition, subtraction, multiplication and division problems ● Construct math arguments in order to solve addition and subtraction problems. ● Understanding concepts ● Reasoning	**Formative** ● Diagnostic assessment ● Study Island ● Kahoot! ● Exit tickets ● Round Robin group work ○ Open ended questions ○ May/may not be game activity ● Analysis of student 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	**Texts** ● enVision math 2.0 **Digital** ● Student/Teacher eText ● Interactive math story ● Home-school connection **Classroom Math Materials** ● Centimeter grid paper ● Coordinate grids ● Pencils ● Straightedge ● Index cards ● Glue

• I can classify quadrilaterals using a hierarchy. • I can construct arguments about geometric figures. • I can multiply multi-digit whole numbers.		• 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 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
Coordinate grid, ordered pair, X-axis, Y-axis, origin, X-Coordinate, Y-Coordinate, Corresponding terms, number sequence, equilateral triangle, isosceles triangle, scalene triangle, right triangle, acute triangle, obtuse triangle, trapezoid, parallelogram, rectangle, rhombus, square

NJ Student Learning Standards: Math
Topic 14
Geometry
5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Topic 15
Operations and Algebraic Thinking
5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Topic 16
Geometry
5.G.B.3 Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

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

- RI.5.1. Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
- RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to

solve a problem efficiently

Science

- 5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
- 5-LS2-1 Develop a model to describe a phenomena.
- 5-PS2-1 Support an argument with evidence, data, and/or a model.
- 5-ESS2-2 Describe and graph quantities such as area and volume to address scientific questions.

NJ SLS: 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

9.1.8.B.7 Construct a budget to save for long-term, short-term, and charitable goals
9.1.8.C.2 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.
9.1.8.C.5 Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, and mortgages) and compare the interest rates associated with each.

Integrated Differentiation/Accommodations/Modifications *(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/g05.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#/