Unit 4: Two-Dimensional Figures and Symmetry

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

ESSENTIAL QUESTIONS

Module 17: How do we identify, classify, and draw two-dimensional figures?

Module 18: How do we identify and draw lines of symmetry? How do we identify and generate shape patterns?

UNIT RATIONALE

Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

In Module 17, students learn how to classify triangles using the size of the angles and length of the sides. They also learn how to draw parallel and perpendicular lines and how to identify them in quadrilaterals. Students learn to classify quadrilaterals using the types of angles and properties of lines. The module concludes with students measuring and drawing angles in quadrilaterals.

In Module 18, students identify line symmetry and draw lines of symmetry. In addition, students generate a shape pattern that follows a rule.

STANDARDS

NEW JERSEY STUDENT LEARNING STANDARDS: CONTENT AREA

MATH.4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
MATH.4.M.B.5	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
MATH.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
MATH.4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category and identify right triangles.
MATH.4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric

figures and draw lines of symmetry.

NEW JERSEY STUDENT LEARNING STANDARDS: CAREER READINESS, LIFE LITERACIES AND KEY SKILLS

TECH.9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.

NEW JERSEY STUDENT LEARNING STANDARDS: COMPUTER SCIENCE AND DESIGN THINKING

CS.3-5.8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
CS.3-5.8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

PRE-ASSESSMENTS

Prior to starting each module, have students complete the Into Math “Are You Ready?” diagnostic assessment (perhaps as an independent center activity or as a Morning Meeting activity). Form B of the module test can be given as a pre-assessment the first day of the module. Use pre-assessment data to diagnose prerequisite mastery, identify intervention needs, and modify or set up leveled acceleration groups. Use the “Data-Driven Intervention” chart for each diagnostic assessment, as well as data from the Form B test* and standards data from the benchmark assessment, to identify intervention resources for each concept/skill.

INSTRUCTIONAL PLAN

MODULE 18

DAY 1

Module 18, Day 1

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to identify a line of symmetry on a two-dimensional figure. 4.G.A.3

Student Learning Strategies	• MP2: Reason (students discuss possible ways to check for line symmetry) • MP6: Attend to Precision (students use mathematical terms to describe images)
Success Criteria	I can: • Draw lines on an image to show where each of the possible folds are that divide the image into matching halves. • Count the number of lines of symmetry an image has.
Formative Assessment (drives instructional decisions)	• Turn and Talk (pgs. 469-470) • Check Understanding (pg. 471 SE) • Exit Ticket Projection or Put It In Writing (pg. 472 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 18.1: Recognize Lines of Symmetry (pgs. 469A-472B TE, pgs. 469-472 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric

figures and draw lines of symmetry.

DAY 2

Module 18, Day 2

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to identify two-dimensional figures that have line symmetry and draw all lines of symmetry on a two-dimensional figure. 4.G.A.3
Student Learning Strategies	• MP7: Use Structure (students discuss polygons and their attributes) • MP7: Use Structure (students discuss what is means to have lines of symmetry)
Success Criteria	I can: • Identify the number of sides for a polygon. • Draw all lines of symmetry. • Count all lines of symmetry.
Formative Assessment (drives instructional decisions)	• Turn and Talk (pgs. 473-474) • Check Understanding (pg. 475 SE) • Exit Ticket Projection or Put It In Writing (pg. 478 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 18.2: Identify and Draw Lines of Symmetry (pgs. 473A-478B TE, pgs. 473-478 SE) • Warm-Up

	• Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

DAY 3

Module 18, Day 3

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to describe and extend shape patterns. 4.OA.C.5
Student Learning Strategies	I can: • Identify the geometric shapes seen in a design. • Describe the shape pattern. • Draw the next figures in the pattern.
Success Criteria	• MP6: Attend to Precision (students use precise terminology as they describe shape patterns) • MP7: Use Structure (students discuss what it means to increase the number of shapes in each row by 1)
Formative Assessment (drives instructional decisions)	• Turn and Talk (pg. 479)

	• Check Understanding (pg. 481 SE) • Exit Ticket Projection or Put It In Writing (pg. 482 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 18.3: Generate and Identify Shape Patterns (pgs. 479A-482B TE, pgs. 479-482 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

MODULE 17

DAY 1

Module 17, Day 1

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to set goal based on pre-assessment data.
Student Learning Strategies	• Challenging goals (0.59) • Assessment-capable visible learner (1.44)

	• Study skills (0.49)
Success Criteria	I can: • Identify the types of questions that I got correct and incorrect. • Set a goal. • List study skills steps to reach my goal.
Formative Assessment (drives instructional decisions)	• Pre-Assessment • Goal Setting Worksheet
Activities and Resources	• Pre-Assessment (Module 17 Test Form B and Module 18 Form B) • Goal Setting • Geometry Learning Progression
Suggested Modifications	See Suggested Modifications list.

DAY 2

Module 17, Day 2

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to identify parallel lines, perpendicular lines, and lines that are neither paralle nor perpendicular. 4.G.A.1
Student Learning Strategies	• MP5: Use Tools (students use a ruler to draw) • MP6: Attend to Precision (students look at the characteristics of each figure)
Success Criteria	I can: • Label pictures to show types of lines. • Define types of lines. • Use a ruler to draw lines.
Formative Assessment (drives instructional decisions)	• Turn and Talks (pgs. 445, 446) • Check Understanding (pg. 447 SE) • Exit Ticket Projection or Put It In Writing (pg. 448 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 17.1: Identify and Draw Perpendicular and Parallel Lines (pgs. 445A-448B TE, pgs. 445-448 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle)

	• Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

DAY 3

Module 17, Day 3

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to measure and classify all of the angles in a triangle. 4.G.A.1, 4.G.A.2
Student Learning Strategies	• MP5: Use Tools (students identify and classify angles) • MP6: Attend to Precision (students use vertices to correctly name triangles)
Success Criteria	I can: • Identify types of angles. • Classify triangles.
Formative Assessment (drives instructional decisions)	• Turn and Talks (pgs.449-450) • Check Understanding (pg. 450 SE) • Exit Ticket Projection or Put It In Writing (pg. 452 TE)
Activities and Resources	Geometry Learning Progression

	Into Math Lesson 17.2: Identify and Classify Triangles by Angles (pgs. 449A-452B TE, pgs. 449-452 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
MA.4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

DAY 4

Module 17, Day 4

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to describe the difference between equilateral, isosceles, and scalene triangles. 4.G.A.1, 4.G.A.2
Student Learning Strategies	• MP5: Use Tools (use a centimeter ruler to measure the side lengths of a triangle) • MP6: Attend to Precision (students will define types of triangles and identify examples of each)
Success Criteria	I can: • Define types of triangles. • Classify triangles as equilateral, isosceles, or scalene.

Formative Assessment (drives instructional decisions)	• Turn and Talks (pgs.453-454) • Check Understanding (pg. 454 SE) • Exit Ticket Projection or Put It In Writing (pg. 456 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 17.3: Identify and Classify Triangles by Side (pgs. 453A-456B TE, pgs. 453-45(SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
MA.4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

DAY 5

Module 17, Day 5

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to identify trapezoids, parallelograms, rectangles, rhombuses, and squares. 4.G.A.1, 4.G.A.2
Student Learning Strategies	• MP6: Attend to Precision (students will learn both definitions of trapezoids)

	• MP5: Use Tools (students use a Venn Diagram to categorize quadrilaterals)
Success Criteria	I can: • Define types of quadrilaterals. • Classify quadrilaterals.
Formative Assessment (drives instructional decisions)	• Turn and Talk (pg. 458) • Check Understanding (pg. 458 SE) • Exit Ticket Projection or Put It In Writing (pg. 460 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 17.4: Identify and Classify Quadrilaterals (pgs. 457A-460B TE, pgs. 457-460 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
MA.4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

DAY 6

Module 17, Day 6

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to use a protractor to accurately and precisely measure and draw angles in two-dimensional figures. 4.G.A.1, 4.MD.C.6
Student Learning Strategies	• MP6: Attend to Precision (precisely measure angles in a triangle) • MP5: Use Tools (students use a protractor to draw angles of a given measure)
Success Criteria	I can: • Use a protractor to measure angles in a triangle. • Use a protractor to draw angles of a given measure.
Formative Assessment (drives instructional decisions)	• Turn and Talk (pgs. 461-462) • Check Understanding (pg. 462 SE) • Exit Ticket Projection or Put It In Writing (pg. 464 TE)
Activities and Resources	Geometry Learning Progression Into Math Lesson 17.5: Measure and Draw Angles o Two-Dimensional Figures (pgs. 461A-464B TE, pgs. 461-464 SE) • Warm-Up • Spark Your Learning • Build Understanding • Check Understanding • Differentiation Options (Small Groups, Own Your

	Own problems, Math Centers, Waggle) • Wrap-Up and Homework
Suggested Modifications	See Suggested Modifications list.

MA.4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Day 10: Modules 17 & 18 Reviews

Student Learning Intentions (SLI) WALT: (We are learning to…)	Modules 17 & 18 Reviews
Student Learning Strategies	• Practice testing (0.46) • Help seeking (0.72) • Deliberate practice (0.79)
Success Criteria	I can: • Use the Geometry Learning Progression and review data to identify the concepts and skills I understand and those that I need to review. • Determine the type of help that I need. • Practice with a focus on improving my understanding of specific concepts and skills.
Formative Assessment (drives instructional decisions)	• Modules 17 and 18 Reviews (pgs. 465-466 and 483-484) or online

	• Reteach Worksheets
Activities and Resources	Geometry Learning Progression Paper version: Give for homework on Day 9 to allow time to score. Use the answer keys on pgs. 465-466 TE and 483-484 TE to score students' Reviews. Online Version: Give on Day 9 (Morning Meeting or center activity) and scores will be available immediately. Use the data-driven instruction charts on pgs. 465-466 and 483-484 or the online Standards Analysis Reports to determine small groups.
Suggested Modifications	See Suggested Modifications list.

REFLECTIONS

Module 17 Reflections:

Module 18 Reflections:

INTERDISCIPLINARY CONNECTIONS: NEW JERSEY STUDENT LEARNING STANDARDS FOR ELA, SOCIAL STUDIES, SCIENCE AND/OR MATHEMATICS

Various reading, writing, speaking, and listening standards listed.

LA.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
LA.RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
LA.W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
LA.SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and

	teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
LA.SL.4.1.A	Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
LA.SL.4.1.B	Follow agreed-upon rules for discussions and carry out assigned roles.
LA.SL.4.1.C	Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
LA.SL.4.1.D	Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
LA.SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
LA.L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.4.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.L.4.2.A	Use correct capitalization.
LA.L.4.2.D	Spell grade-appropriate words correctly, consulting references as needed.
LA.L.4.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
LA.L.4.4.A	Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
LA.L.4.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).