

Grade 4

Unit 4.2	Unit Title Identifying Lines, Angles, and Shapes	Lesson 1 of 3	Day 1 - 4
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Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines, identify these in two-dimensional figures.	<ul style="list-style-type: none"> •Identify and draw points, lines, line segments, rays, and angles. •Identify and draw parallel lines and perpendicular lines. 	SMP6 Attend to precision. SMP7 Look for and make use of structure.	How can you identify and draw points, lines, line segments, and angles? How can you identify and draw parallel lines and perpendicular lines?
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
Differentiate among geometric shapes. Identify and name lines. Classify angles as acute, right, or obtuse.	Point Right Angle Line Acute Angle Line Segment Obtuse Angle Ray Straight Angle Angle Parallel Lines Perpendicular Lines Intersecting Lines		OnCore Lessons 98-99 Student pp. 195-198 Investigations Unit 4 Snap-In Session 3.4A Resource Masters C13- C16 K-5 Math Resources —activity for 4.G.1 Alphabet Lines

Instruction

9. Instruction Practices (What are the teachers doing)	10. Learning Practices (What are the students doing)
<p>Teachers will guide children to identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines following the lesson guidelines in OnCore lessons 98-99 (TM pp.103-104), teachers will:</p> <p>Introduce the lesson by drawing a point and a line and asking the students to describe each figure. Explain what they are called and tell them that they will see how other figures are formed using just points and lines. Discuss the vocabulary that is on page 195 and ask students to explain how rays and line segments are different from lines, Stress when naming a ray, the beginning point is always named first. • Draw a line on the board and ask what type of figure it is. Then draw a second line that intersects it. Ask students to classify the angles as acute, obtuse, and right. Guide students through the discussion at the top of page 197. Make sure students understand that perpendicular lines can be intersecting lines. (Side note: if students confuse the words parallel and perpendicular, point out that the two ll's in parallel look like lines that do not meet.)</p> <p>Teachers will be following lesson activities from Investigations Unit 4 Snap-in session 3.4A materials. (TM pp. CC21-CC25) In the activities teachers will: •Go over why you draw two arrows for a line, a point and an arrow for a ray, and two endpoints for a line segment. Have students relate circular arcs to angle measures before they use a protractor. (TM p. CC23.)</p> <p>Note: There are several variations of the definition of an angle. The definition of an angle sometimes reads, “An angle is formed by two rays that share a common endpoint.” When students are classifying different angles in two -dimensional figures they do not see the lines segments as rays and may be confused by the definition.</p>	<p>In OnCore Lessons 98-99 students will:</p> <ul style="list-style-type: none"> • Draw and label lines, line segments, and angles. • Name line segments, angles, and rays. • Classify angles as obtuse, acute, or right • Reading notations for lines, line segments, rays, parallel and perpendicular lines. • Name sets of lines that are parallel, perpendicular, or intersecting. • Draw and label lines that are intersecting, parallel, and perpendicular. • Complete student pp.195-198 <p>In Investigations Unit 4 Snap-in Session 3.4A students will:</p> <ul style="list-style-type: none"> • Draw lines and angles. • Use a protractor to measure angles. • (Extension activity- Use a protractor to draw angles with given measures.) • Complete Resource Masters C-13-C16. <p>In K-5 Math Resources—activity for 4.G.1 students will: Use a geoboard to make uppercase letters that have parallel lines,</p>

perpendicular lines, and intersecting lines.

Grade 4

Unit 4.2	Unit Title Identifying Lines, Angles, and Shapes	Lesson 2 of 3	Day 5 - 8
Lesson Focus			
1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
4.G.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.	<ul style="list-style-type: none"> •Classify triangles by the size of their angles. •Sort and classify quadrilaterals. 	<p>SMP3 Construct viable arguments and critique the reasoning of others.</p> <p>SMP6 Attend to precision.</p>	<ul style="list-style-type: none"> •How can you classify triangles by the size of their angles? •How can you sort and classify quadrilaterals?
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
Identify angles as acute, right, or obtuse. Identify parallel and perpendicular lines.	Obtuse triangle Right triangle Acute triangle Trapezoid Parallelogram Rhombus Rectangle Square	Students may think that a square cannot be a rectangle (or some may think that a rectangle is a square too).	<p>OnCore Lessons 100 - 101 Student pp. 199-202</p> <p>Investigations Unit 4 Snap-In Session 2.3A Resource Masters C9-C12 (*Optional -Investigations Unit 4 sessions 3.1-3.2 making angles with power polygons. - may want to do lessons or just some activity pp. 37-45.)</p> <p>K-5 Math Resources–activity for 4.G.2 Classifying 2D Shapes (On this K-5 Math Resources site there are 6 other activities that are optional.)</p>
Instruction			
9. Instruction Practices (What are the teachers doing)		10. Learning Practices (What are the students doing)	
<p>Teachers will guide children to classify triangles by the size of their angles and sort and classify quadrilaterals following the lesson guidelines in OnCore lessons 101-102 (TM pp.105-106), teachers will: Introduce the lesson by displaying several angles and having the students identify each angle as acute, right, or obtuse. Tell them they will use these types of angles to give special names to triangles. Discuss the square-corner mark on the triangle shows a right angle. Stress the fact that all triangles have at least two acute angles. It is important that students understand that it is not possible for a triangle to have more than one obtuse angle or more than one right angle. Remind students of how they classified triangles by their angle size and explain that to classify quadrilaterals they will use the definitions of parallel and perpendicular lines. Discuss the flow chart of quadrilaterals and point out how the information in the chart defines each figure. (NOTE: When reading the chart from the top down say “some”- i.e., Some rectangles are squares. When reading from the bottom up say “all”- i.e., All squares are rectangles. If the shapes are not vertically connected, say “never”- i.e., A square is never a trapezoid.)</p> <p>•Teachers will be following lesson activities from Investigations Unit 4 Snap-in session 2.3A materials. (TM pp. CC16-CC19) In the activities teachers will: Go over definitions of the vocabulary words and have student demonstrate them. Have students sort shapes by their angle sizes and whether the sides are parallel or perpendicular.</p>		<p>In OnCore Lessons 100 - 101 students will:</p> <ul style="list-style-type: none"> • Identify angles as acute, right, or obtuse. • Classify triangles by their angle size. • Classify quadrilaterals as many ways as possible. • Complete student pp.199 - 202 <p>In Investigations Unit 4 Snap-in Session 2.3A students will:</p> <ul style="list-style-type: none"> • Identify geometric figures. • Compare shapes to see how they are the same and different. • Sort shapes by their attributes. • Complete Resource Masters C9-C12. 	

Lesson Alignment Guide – Mathematics Cranston Public Schools

Grade 4

Unit 4.2	Unit Title Identifying Lines, Angles, and Shapes	Lesson 3 of 3	Day 9 - 10
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Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
4.G.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.	<ul style="list-style-type: none"> •Determine whether a figure has a line of symmetry. •Identify and draw lines of symmetry in two-dimensional figures. 	<p>SMP2 Reason abstractly and quantitatively.</p> <p>SMP7 Look for and make use of structure.</p>	<p>How can you check if a shape has a line of symmetry?</p> <p>How do you find lines of symmetry?</p>
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
Recognize congruent shapes. Recognize lines of symmetry in two-dimensional figures.	Line symmetry Line of symmetry		<p>OnCore Lessons 102-103 Student pp. 203 - 206 Tracing paper, grid paper, scissors</p> <p>K-5 Math Resources—activity for 4.G.3 Symmetry on the Geoboard (Optional) This site has 5 other nice activities that could be used for enrichment.</p>

Instruction

9. Instruction Practices (What are the teachers doing)	10. Learning Practices (What are the students doing)
Teachers will guide children to determine whether a figure has a line of symmetry and identify and draw lines of symmetry in two-dimensional figures following the lesson guidelines in OnCore lessons 102-103 (TM pp.107-108), teachers will: Display a heart shape and point out that it can be divided into two matching parts. Ask students to name other familiar shapes that have matching (congruent) parts. Discuss the meanings of line symmetry and line of symmetry. Make sure that students recognize that if the corners of some parts do not meet when a figure is folded along a line, then it is not a line of symmetry. Give students half a shape drawn on grid paper with a line of symmetry indicated along one side and have the students complete the shape on the other side of the line. Have students look at figures with no lines drawn and decide if there is a way to draw a line of symmetry. In the examples given, if students have trouble seeing the diagonal lines of symmetry, suggest they turn the tracing so that the lines are positioned vertically or horizontally. Give students a description of a figure – zero lines of symmetry, one line of symmetry, or more than one line of symmetry – and have them draw a shape that matches the description.	<p>In OnCore Lessons 102 – 103 students will:</p> <ul style="list-style-type: none"> • Tell whether the parts on either side of a line are congruent. • Tell if a line is a line of symmetry. • Complete a design by reflecting over the line of symmetry. • Find and draw lines of symmetry. • Tell whether the shape has zero, 1, or more than 1 line of symmetry. • Draw shapes for the statements given and draw lines of symmetry. • Complete student pp.203 - 206