Lesson Maker Pro

Measure and Build Angles

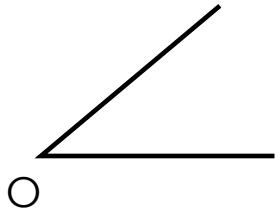
Use a protractor, straightedge and triangle models.

5.MG.3 The student will classify and measure angles and triangles, and solve problems, including those in context. Classify angles as right, acute, obtuse, or straight and justify reasoning. Classify triangles as right, acute, or obtuse and equilateral, scalene, or isosceles and justify reasoning. Identify congruent sides and right angles using geometric markings to denote properties of triangles. Compare and contrast the properties of triangles. Identify the appropriate tools (e.g., protractor, straightedge, angle ruler, available technology) to measure and draw angles. Measure right, acute, obtuse, and straight angles, using appropriate tools, and identify measures in degrees. Use models to prove that the sum of the interior angles of a triangle is 180 degrees and use the relationship to determine an unknown angle measure in a triangle. Solve addition and subtraction contextual problems to determine unknown angle measures on a diagram.

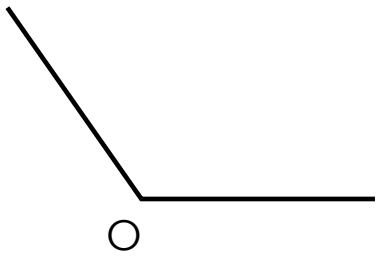
NAME _____ **DATE** _____

Measure, classify, construct

1. Measure the two printed angles with a protractor. Record each measure and classify it as acute, right, obtuse or straight.



A



B

2. Use a protractor and straightedge to draw 65°and 120°angles. Mark their vertices. Explain how you chose the correct protractor scale.

Investigate triangles

4. Draw and cut out any triangle on scrap paper. Tear off its three corners and arrange them with their vertices together along a straight line. Sketch the result and explain what it suggests about the angle sum.

5. A triangle has angles 50°,60°and x°. Find x and classify it by angles and sides. A second triangle has angles 45°,45°,90°; classify it both ways and mark its equal sides and right angle in a sketch.

6. A straight angle is divided into two adjacent angles; one is 117°. Draw and label a diagram and find the other. Explain the subtraction.

3. Draw a right angle and a straight angle. State their measures.

Teacher Key

1:A 40°acute;B 125°obtuse, allowing±2°measurement tolerance.2:check actual 65°and 120°drawings, vertex, baseline and correct scale.3:90°right,180°straight.4:three corners make 180°in the model; distinguish a physical demonstration from a formal proof.

5:x=70°; all acute and all unequal, so acute scalene. Second is right isosceles; equal sides are opposite the two 45°angles, with a square mark at 90°.6:180−117=63°, with adjacent rays forming the specified straight angle. Supply protractor, ruler, scrap paper and scissors; require constructions rather than only vocabulary labels.