

Understanding Angles




Overarching Student Learning Goals

In this unit, your child will work to build an understanding of the following:




Draw and identify various types of angles.

Use benchmark angles of 90° and 180° to estimate the degree measure of an angle.

Classify angles as...

Acute	Right	Obtuse
Less than 90° ($1^\circ - 89^\circ$)	Measures exactly 90° (90°)	More than 90° ($91^\circ - 179^\circ$)
		

Example: Select the category of measure for each angle.

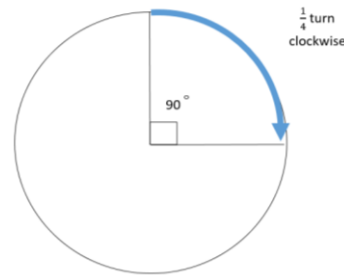
	Less than 90°	Between 90° and 180°
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Recognize the unit used for measuring angles, a degree, and its relationship to a circle.

Apply the connection between angles and fractional parts of a circle and understanding of fraction equivalence to determine angle measure in degrees; an angle that turns through $1/360$ of a circle is a “one-degree angle.”

Example:

The measure of the angle shown can be found by considering the fraction of the arc between the two rays of the angle, which is $\frac{1}{4}$. By finding $\frac{1}{4}$ of the 360° of the whole circle, students prove the measure of the angle is 90° .



Resources/Tasks to support your child at home.

- Identify angles in the real-world environment: As you are in your home, driving, at a store... look for examples of acute, right and obtuse angles. Extend to have your child record and draw the examples of each angle found.
- Khan Academy: Acute, Right and Obtuse Angles <https://goo.gl/Hp45BT>
- Khan Academy: Drawing Acute, Right and Obtuse Angles <https://goo.gl/WZNT7h>
- Angle Game: <https://goo.gl/5XjkwH>
- Fold to identify angles using a circle piece of paper. Knowing that the whole circle is 360° , if I fold it in half what is the measure of each angle? (180°) Continue with folding the circle in fourths (90°), eighths (40°), etc.
- Khan Academy: Angle Measurement & Circles <https://goo.gl/ASFw5b>

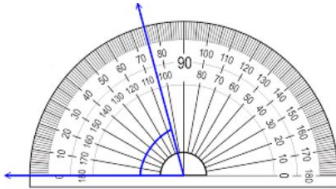
Grade 4

Measure and draw angles using a protractor.

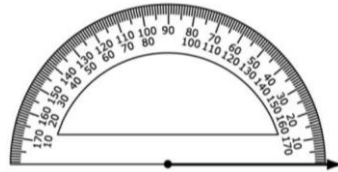
Measure angles in whole number degrees using a protractor and make sketches of specified angle measures.

Examples:

What's the measure of the angle in degrees? 75°



Angle P measures 68° . One ray of Angle P is shown. Draw the other ray of the angle to create Angle P.



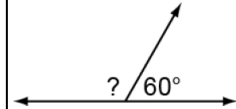
- Using a protractor, have your child practice measuring the angles of different objects within your home. Also, give them a specific measurement from 1° - 180° to draw using the protractor. (Remember to include angles that open to the right and angles that open to the left).
- Banana Hunt Online Game: <https://goo.gl/j3XqVC>
- Alien Angles Online Game: <https://goo.gl/AQtpAG>
- Stargazing Online Game: <https://goo.gl/Kjx7nE>

Identify and apply angle measurement as additive.

Recognize that angle measure is additive. Write equations to represent unknown angle measure problems. Solve addition and subtraction problems to find unknown angles.

Examples:

What is the measure of the unknown angle?



- A. 40°
- B. 100°
- C. 120°
- D. 180°

Equation: $60^\circ + ? = 180^\circ$

Kyle is adding angles to create other angles.

Select the angles Kyle can use to create a 128° angle.

Select the angles that Kyle can use to create a 55° angle.

	64°	34°	30°	25°
128°	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55°	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Draw angles to have your child measure. Have them decompose the angle into two smaller angles and measure with a protractor the angle in degrees and then record the smaller angle measures. Extend to have them decompose in different ways. Consider extending to give the larger angle measure and one of the smaller angle measures, then they have your child determine the missing angle measure.
- Adjacent Angles Online Game: <https://goo.gl/phijMY>
- Khan Academy: Decomposing an Angle <https://goo.gl/fCjZ5Q>