

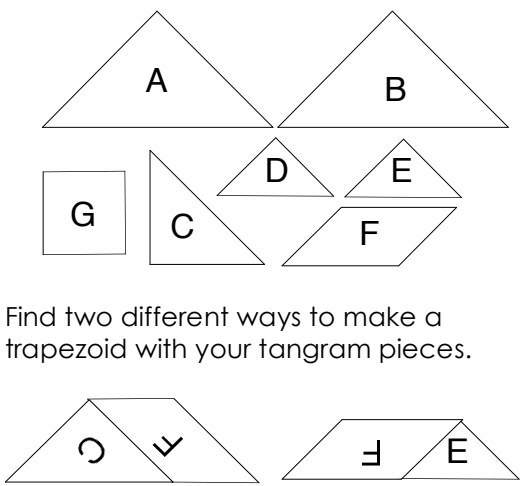
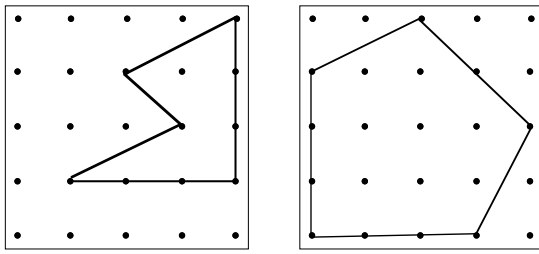
Grade 3, Unit Three: Two- & Three-Dimensional Geometry

In this unit your child will:

- identify, classify, describe, and compare 2- and 3-dimensional shapes
- recognize shapes that are congruent (same size and shape) and similar (same shape)
- identify right, acute, and obtuse angles
- explore the effects of flips, slides, and turns (i.e., transformations) on 2-dimensional shapes

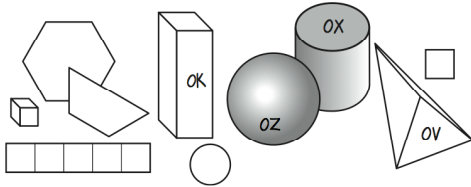


Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework.

Problem	Comments
 <p>Find two different ways to make a trapezoid with your tangram pieces.</p>	<p>To solve this problem, students must first know what a trapezoid is (a four-sided shape with just one pair of parallel sides). They must also identify different ways of combining tangram pieces by lining up the sides of different shapes that are equal in length. When students first begin working with tangrams (after making a set themselves), they may solve problems like these using trial and error. As they become more familiar with the pieces, they may approach problems like these in a more systematic way, based on the relationships among the shapes.</p>
<p>Create two different irregular pentagons with exactly 1 right angle each.</p> 	<p>An irregular pentagon has 5 sides that are not all of equal length. A right angle measures exactly 90 degrees, like a square corner. Students learn geometry terms like these and then apply them when identifying and drawing shapes.</p>

The mystery shape:
 has 6 faces
 has 2 congruent square faces
 has 4 congruent rectangular faces

Which shape is it? Explain how you know.



Block OK. The little cube has 6 faces too, but they are all congruent. Block OK is the only one that matches all the descriptions.

For a problem like this one, students would be able to hold and closely investigate the pictured shapes. To identify the shape, they must understand all of the key terms used to describe it; for example, *congruent* means *of the same size and shape*. Then they must be able to evaluate all of the shapes to determine which ones meet the criteria. Throughout this unit, students learn new terms and concepts in geometry and then apply them by building, drawing, playing games, and solving shape riddles.

Frequently Asked Questions about Unit Three

Q: I can't remember what so many of the geometry words mean. Where can I go for help?

A: There are many words that we use almost only in geometry class. These words are important because they let us name shapes and talk about them in precise ways. You can go to www.mathlearningcenter.org/resources/materials/parents/parents3.asp to find a PDF of vocabulary words for Grade 3 Bridges students (an example is shown below). On this Web page, there is also a link to a helpful online math dictionary for students. Both sources show pictures and examples of all vocabulary words: these visual aids are especially helpful for geometry words.

Bridges in Mathematics		
	Grade 3 Home Connections Vocabulary	page 1 of 3
Word	Definition	Examples
acute angle	an angle that measures less than 90 degrees	
area	the total number of square units covered by a 2-D shape	 $2 \text{ cm} \times 3 \text{ cm} = 6 \text{ cm}^2$ The area of this rectangle is 6 square centimeters.
array	an orderly arrangement, as in a rectangle used to represent a multiplication problem	

Q: Why is geometry important?

A: Studying geometry provides ways for students to analyze the physical world. The skills students develop now—including the vocabulary that they will come to understand and use with confidence—will help them in high school geometry, trigonometry, physics, and calculus. An additional benefit of studying geometry is that many students with a strong spatial sense—for example, the ability to visualize and manipulate shapes in their minds—blossom when they are engaged in the kind of spatial problem solving featured in this unit.