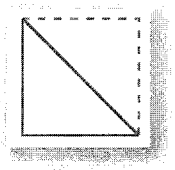
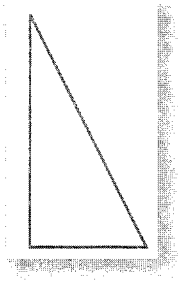
Teacher Note

Understanding the Area of Triangles

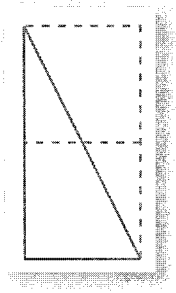
In this unit, students learn about measuring area as "covering a flat space with square units." Finding the area of triangles is studied in this unit by looking at each triangle in relationship to a related rectangle. For example, it is easy to see that the smaller of the two triangles on the Square and Triangle Cut-Outs is half a square unit.



When students are comfortable with the unit square as one square unit and the small triangle as a half of a unit, spend time talking about the one-unit triangle.

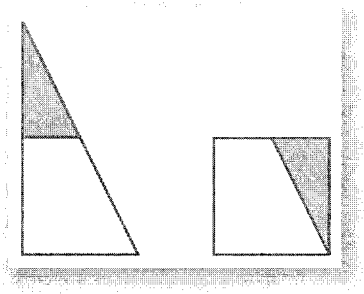


Students can use their Tetromino Puzzle to help them think about how the triangle is related to one square unit. Here are two ways to think about it: First, you can think of this shape as half of a 2-unit rectangle. Since the rectangle is two square units and the triangle is half of the whole shape, you can conclude that the triangle is half of two—or one square unit:



Students may express this by saying something like, "Two of them together makes two squares, so each of them must be one square unit."

Another way to see that this triangle has an area of one square unit is to cut the triangle into two pieces and rearrange the pieces to make a unit square.



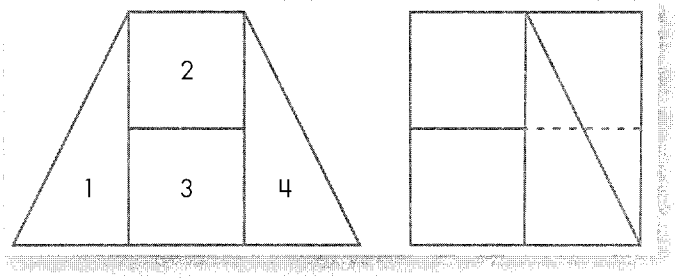
Some students will immediately "see" this relationship as they look at the unit triangle drawn on top of the 2-unit rectangle.

Initially it is fine if some of your students are only comfortable with the square and half-unit triangle as a measure of area. If your students do use the larger one-unit triangle to make new shapes later on, make sure that they can prove the area of the shapes.

For example, suppose they make the shape below (at left).

Students might say:

"See, if you cut off this piece (piece 1) and turned it around and put it over on the other side, like this (see the second figure), it would cover four squares."



If students say only "Because this triangle is 1," they may just be repeating what they have heard from you or other students. Be sure they can explain why the area is 1 by one of the methods discussed in this note or by some other convincing method of their own.