

Same Shape, Different Pieces

What Happens

Students find different ways to fill a shape with pattern blocks. They record which pattern blocks they use, how many of each shape, and the total number of blocks used. Their work focuses on:

- filling an outline with shapes
- finding combinations of shapes that fill a region
- counting and adding

Materials

- Pattern blocks
- Student Sheet 2 (1–2 per student)
- Paper pattern blocks and glue sticks or paste, or pattern block stickers, or crayons

Spend a few minutes sharing students' drawings of objects at home. One way to include all students in a short period of time is to do a quick sort: Have one student hold up and describe the picture he or she drew. Then ask any students who have a picture that is similar in shape to stand with that student and hold up their pictures.

So Fernando drew his baseball, and he says it's kind of round. Michelle says it's like a globe. Did anyone else draw something that is kind of round or like a globe?

Next ask for a picture that is very different in shape and start a new group; students with pictures that are similar in shape join that student and all hold up their pictures. Gradually sort all the pictures in the classroom into several groups of shapes that go together.

Activity

Sharing Homework

Activity

If your students are familiar with pattern blocks, they will only need a brief introduction to get started on this activity. If they have not used pattern blocks much this year, arrange for some free exploration time before you begin this activity, so that students become familiar with the pattern block shapes and how they fit together. You might also add time for free exploration with pattern block shapes, on and off the computer, during Choice Time in Sessions 3–6. See the **Teacher Note**, Pattern Block Shapes (p. 16), for more information.

Pattern Block Shapes

Students use the pattern blocks to fill in the shape on Student Sheet 2, Pattern Block Fill-In, Shape A. Students may work alone or in pairs, depending on your supply of pattern blocks. If you have enough blocks, you may want to let students make the choice to work alone or with another student.

When they have filled in the outline, students record their work by gluing paper pattern blocks or putting stickers in the shapes, or by tracing the outlines of their blocks and coloring in. (If you have pattern block templates, some students can successfully use them to record designs, although others at this age find it difficult to use a template.) In the chart, students fill in how many of each kind of block and the total number of blocks they used.

Students who finish one pattern can take another copy of Student Sheet 2 and find a different way to fill in the outline.

Observing the Students

Observe and talk with students during this first experience filling in shapes with pattern blocks to get a sense of how they use the blocks to fill in an outline and how they record their work.

Name **Eva** Date **Student Sheet 2**

Pattern Block Fill-In, Shape A

How many blocks did you use?

Shape							Total blocks
How many?	2	1	0	0	2	7	12

Eva counted up each kind of block accurately, then found the total this way: "7 + 2 is 8, 9, and 2 more is 10, 11, then 1 is 12."

Name **Tony** Date **Student Sheet 2**

Pattern Block Fill-In, Shape A

How many blocks did you use?

Shape							Total blocks
How many?	0	0	0	0	2	22	24

Tony also counted the blocks carefully, then found the total by adding 2 onto 22.

- Do students easily find shapes to fill in different parts of the outline? For example, do they see immediately that the “ears” at the top of the shape on Student Sheet 2 can be filled with tan rhombuses? Do they see that a trapezoid can fill the bottom section of the outline?
- Do students seem fluent in finding ways to fit shapes together in the interior of the outline where it is not so obvious which shapes to choose?
- Do you see evidence that students know how to make the same shape in different ways? For example, do some students fill the trapezoidal shape with three triangles or with a blue rhombus and a triangle?
- Can students find ways to keep track of how many of each kind of pattern block they used? Do they double-check their counts?
- How do students find the total number of blocks? Do they count all the blocks by 1’s? Do they use the numbers in the chart? How do they add the numbers in the chart?

If some students have difficulty finding ways to fill in the outline and don’t have a sense of how to put together shapes to make other shapes, give them opportunities to freely explore the pattern blocks, either during Choice Time in Sessions 3–6 or at other times during the school day.

Name Nadia Date _____ Student Sheet 2

Pattern Block Fill-In, Shape A

How many blocks did you use?

Shape							Total blocks
How many?	0	0	4	0	2	13	20

Nadia miscounted the number of triangles but got the correct total by recounting all the blocks in the design.

Name William Date _____ Student Sheet 2

Pattern Block Fill-In, Shape A

How many blocks did you use?

Shape							Total blocks
How many?	0	0	4	0	8	7	19

William had difficulty fitting blocks into the outline and found it hard to record what he did. However, he counted the shapes accurately and figured out the total by starting with 4, then counting on 8, and then 7, by 1’s.