

ACTIVITY 7.4

Parts That Are Alike

Copy a shape from a card, and have students subdivide or cut it into smaller shapes on their geoboards. Specify the number of smaller shapes. Also specify whether they are all to be congruent or simply of the same type as shown in Figure 7.9 on p. 199. Depending on the shapes involved, this activity can be made to be quite easy or relatively challenging.

Have lots of geoboards available in the classroom. It is better for two or three children to have 10 or 12 boards at a station than for each to have only one. That way, a variety of shapes can be made and compared before they are changed.

Teach students from the very beginning to copy their geoboard designs. Paper copies permit students to create complete sets of drawings that fulfill a particular task.

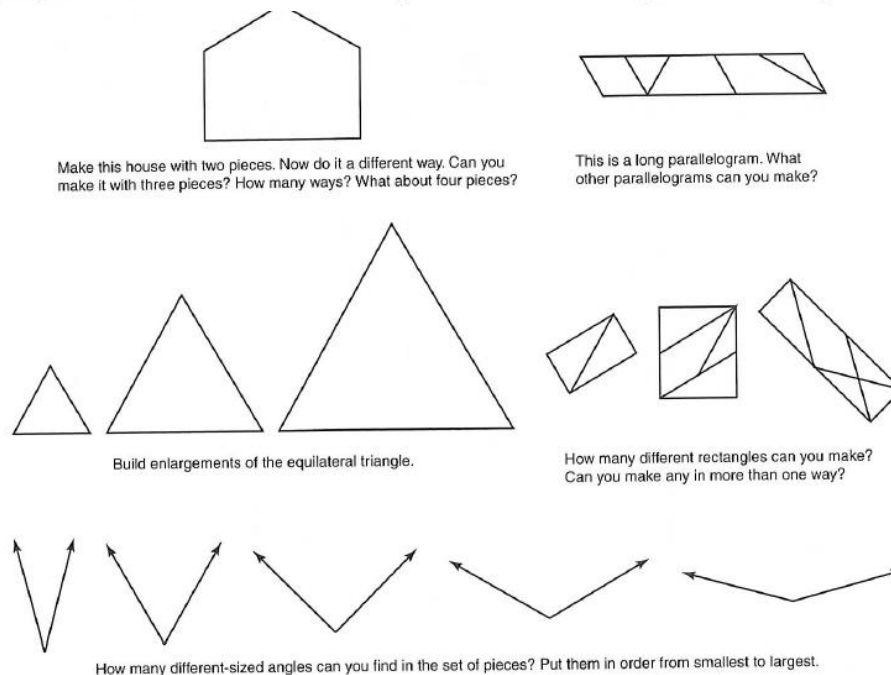


FIGURE 7.7

A sample of activities with the mosaic puzzle.

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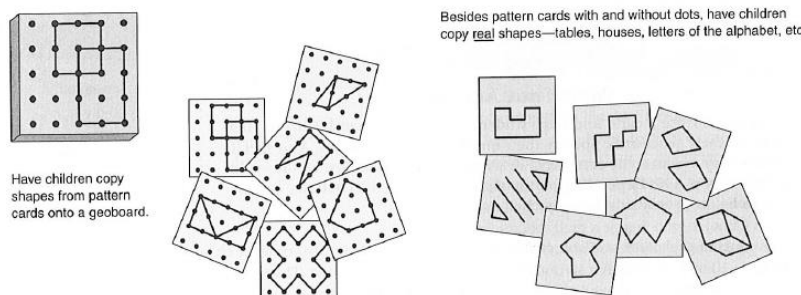
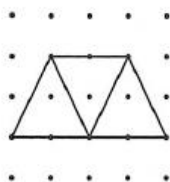
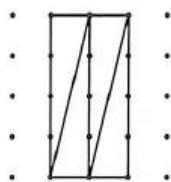


FIGURE 7.8

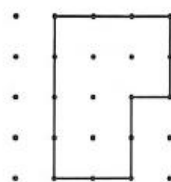
Shapes on geoboards.



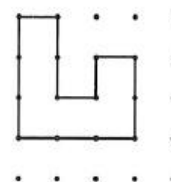
Three triangles all the same



Four triangles



What is the fewest number of triangles that will fit this?



Fill with three rectangles all the same

Start with a shape and cut it into smaller shapes.
Add special conditions to make the activity challenging.

FIGURE 7.9
Subdividing shapes.

Drawings can be placed on the bulletin board for classification and discussion, made into booklets illustrating a new idea that is being discussed, and sent home to show parents what is happening in geometry.

Younger students can use paper with a single large geoboard on each sheet. Later, a paper board about 10 cm square is adequate. Both are found in the Blackline Masters.

To help children in the very early grades copy geoboard designs, suggest that they first mark the dots for the corners of their shape. Encourage students to say a name for each peg, such as, "second row, end peg" as they point to it on their geoboard. Then they can use the name to find and mark the corresponding dot on their paper. With the corners identified, it is much easier for them to draw lines to make the shape.



BLM 28-29



Technology Note

The *e-Standards* provides a very good electronic geoboard. Although found in the K-2 section and entitled "Investigating the Concept of a Triangle," this is actually a great geoboard applet for any grade. It allows you to select and delete bands, and select and delete vertices. The *Geoboard* applet from the National Library of Virtual Manipulatives (<http://matti.usu.edu/nlvm/nav/vlibrary.html>) is essentially the same but with some additional features.

From Van de Walle, J. A. & Lovin, L.H. (2006). *Teaching Student-Centered Mathematics Grades K – 3*. Toronto: Pearson Education, Inc. (p. 197-199).