

Match My Grid

Grades K-1

Summary

Students work in pairs; one student arranges three to five shapes on a piece of paper that has been separated into four sections. Using positional and geometric vocabulary, the student describes the arrangement of the shapes to the partner. Using a set of the same shapes, the partner places the shapes in the arrangement described by the first student.

Goals

- Describe relative position
- Use positional vocabulary (*above, below, right, left, in front of, behind*)
- Use grids to locate objects

Prior Knowledge

- Recognizing the names of two-dimensional shapes
- Familiarity with positional vocabulary

Materials

- One barrier, such as a tall book or a file folder, for each pair of students
- Two identical sets of three to five different shapes (pattern blocks, attribute blocks, or logic blocks) for each pair of students
- Two four-quadrant grids for each pair of students

Activity

Engage

Place two chairs side by side at a table. Place a barrier on the table between the two chairs so that neither student can see the other's work (see fig. 2.1). To demonstrate the activity, sit on one side of the barrier and have a student sit on the other side. Show that you and the student have identical sets of shapes (e.g., a circle, a square, and a hexagon) and identical grids with four sections. Explain that the student's task will be to put the shapes on the grid and describe the positions to you without actually showing you the arrangement. Your job will be to make with your shapes the arrangement the student describes. Repeat the activity, deliberately misunderstanding the directions so that the students can catch your errors. After the directions have been given, lift the barrier so that the students can verify that the locations and positions of the shapes match.

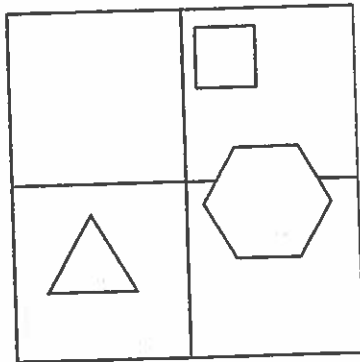
Explore

Have the students repeat the activity in pairs, taking turns playing the teacher's role. Give the students three to five shapes, as appropriate. The first student may put all the shapes in one quadrant, distribute them among the quadrants, or lay the shapes on the lines between the

Find and name locations with simple relationships such as "near to" and in coordinate systems such as maps



A grid is any connection of horizontal and vertical lines that can be used to help describe location.



Three shapes on a four-quadrant grid

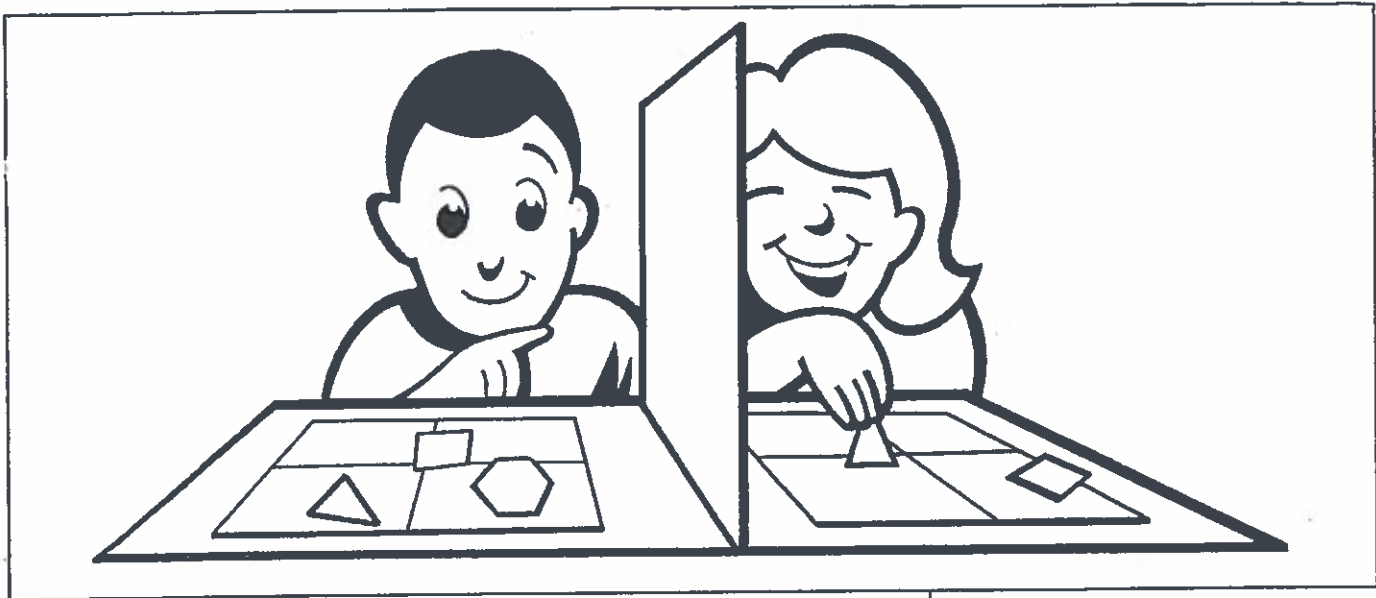


Fig. 2.1.
The grid game

quadrants. Explain that the second student is not allowed to peek at the arrangement that is being described. Decide before the start of play whether questions (e.g., Is the circle near the rectangle?) may be asked.

To describe the locations of the shapes, the students should use spatial and geometric vocabulary such as *above*, *the short side*, *two fingers below*, *to the right of*, and *near the edge*.

As the students do the activity, listen to the language they use and take note of the following:

- Can they correctly distinguish between left and right?
Do they use language like *top* and *bottom* or *above* and *below*?
- Do they have more difficulty describing the orientation of the shape than the position of the shape, or vice versa?
- Do they assume that a shape has a standard orientation? For example, do they identify triangles correctly only when a base of the triangle is horizontal?
- Which shape do they choose to describe first? Is there a pattern in their approach?

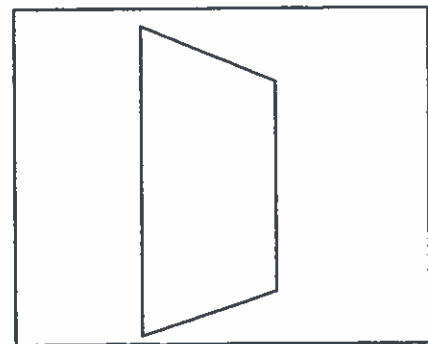
Extend

The students can use more shapes or grids with more sections. If a shape has, for example, only one line of symmetry, it will be more important for the students to describe carefully how the shape is oriented. For example, to describe the trapezoid in figure 2.2, the children might say, "I'm talking about the trapezoid. The long side goes up and down on the left side."

Discussion

Young students often treat geometric arrangements "globally," which makes it difficult for them to recognize the component parts and any relationships among those parts. For example, a student might see a 2×3 grid as a rectangle but not "see" the six squares that make up the arrangement. This activity requires the students to look at the individual objects of the arrangement. It also helps them realize that they have to

Fig. 2.2.
A trapezoid



“When students struggle to communicate ideas clearly, they develop a better understanding of their own thinking.” (NCTM 2000, p. 129)



use a common language rather than their own unique language so that others can follow their directions and create a matching arrangement.

This activity integrates measurement vocabulary (e.g., *longer* and *shorter* sides), positional vocabulary, and geometric vocabulary (both names of shapes and words like *corner* or *vertex* and *edge*). This activity also serves as a gentle introduction to coordinate systems, since the four-quadrant grid in this activity is a simple coordinate system with only two columns and two rows.

