Pentasquare Activities

TOOLS
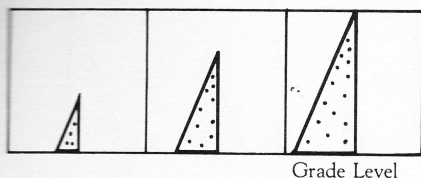
Pencil

2 cm graph paper
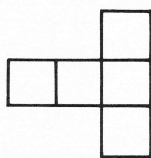(see page 80)

Scissors

Tiles or paper squares
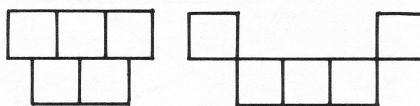
Why

To develop spatial visualization skills

► *This activity will help students see* **congruent** *shapes and use a systematic approach for identifying characteristics of shapes. Two figures are* **congruent** *if they are exactly the same size and shape.* ◄

How

☐ This is a series of activities using shapes made of five squares.

☐ Use the tiles or paper squares at first to explore different arrangements, then record the results on graph paper.

☐ In arranging the five squares, the rule is that each of the squares must share a full side with at least one other square, and that wherever the squares touch, it must be with full sides touching.
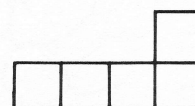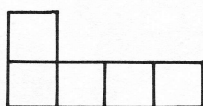
This is a pentasquare.   These are not pentasquares.

☐ Make as many pentasquares as you can, recording each on graph paper.

► *For this activity, we will consider pentasquares that are* **congruent** *as the same. If you can move, flip, or rotate one shape so that it fits exactly on another, the two shapes are congruent. These pentasquares are* **not** *different—they are congruent.* ◄
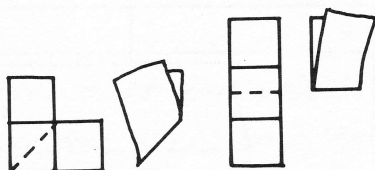
☐ Study the pentasquares carefully. Mark an X on those that you think can be folded up into an open box.

☐ Cut out all of the pentasquares and fold them to check.

☐ Sort out the pentasquares into those that will make a box and those that will not make a box. Look at the group that will not make a box and talk together about what you see and why you think those shapes didn't work.

More Ideas

☐ For younger children, try to find all the different arrangements that can be made with three squares, then four squares. None of these will fold into a box, but they can be sorted into those that have symmetry and those that do not. Cut out each shape and see if it can be folded in half to show that it is symmetrical. Not all of these shapes will work, but most of them will.

☐ For older children look for all of the shapes that have six squares. Some of these will make a cube.

If your children are interested in the project, try the shapes that have seven squares. There are a **lot** of them, so this activity will take extra time.

2 CENTIMETER Graph paper