

Making Tangram Pieces by Folding Paper

Summary

This activity provides step-by-step directions for making tangram pieces.

Main Core Tie

Mathematics Grade 2

[Strand: GEOMETRY \(2.G\) Standard 2.G.1](#)

Additional Core Ties

Mathematics Grade 2

[Strand: GEOMETRY \(2.G\) Standard 2.G.3](#)

Materials

One sheet of construction paper per student

Scissors

Additional Resources

Book

- *Grandfather Tang's Story*

, by Ann Tompert; ISBN 0517885581

Background for Teachers

Geometry Definitions

Acute—an angle that is smaller than a right angle (i.e., measures less than 90 degrees)

Congruent—figures, segments, or angles that have the same size and shape

Obtuse—an angle that is greater than a right angle (i.e., measures more than 90 degrees)

Parallel—lines that do not intersect

Parallelogram—a quadrilateral with two pairs of parallel sides

Trapezoid—a quadrilateral with exactly one pair of parallel sides

Intended Learning Outcomes

1. Demonstrate a positive learning attitude toward mathematics.
2. Become mathematical problem solvers.
3. Reason mathematically.
4. Communicate mathematically.

Instructional Procedures

Invitation to Learn

Tell or read *Grandfather Tang's Story*.

Instructional Procedures

Use the following step-by-step directions (word for word if you choose) to direct this activity. [*In brackets are discussion suggestions that emphasize geometric concepts.*] At each step along the way, it's helpful if you fold and tear a large piece of paper as a demonstration.

By the way, instead of cutting, fold back and forth, then lick, fold, and tear! It works!

First we need to make a square piece of paper. Fold your sheet so that a shorter side coincides with a longer side. Tear (or cut) off the excess strip of paper. Unfold the remaining paper.

[Discuss the original shape (rectangle), and the shape you now have (square).]

Note: After each of the following steps, have students reassemble the torn pieces into a square before going on.

Fold along the diagonal in the square. Tear along the fold.

[Discuss the two shapes. The two triangles are alike or congruent; each has one square corner called a right angle.]

Fold each triangle in half. Unfold each. Tear one triangle along the fold to make the first two tangram pieces. Set them aside.

[Discuss the shapes. All are right triangles; the two small triangles are alike or congruent; the small triangles are the same shape or similar to the large triangle.]

Take the large triangle and fold its square corner (right angle) to the middle of the opposite side (hypotenuse). Tear along the new fold to make the third piece.

Set this triangle aside.

[Discuss the resulting shapes and angles. A trapezoid is a four-sided figure with one pair of opposite sides parallel; in this case, the triangle has a right angle but the trapezoid does not; two angles in the triangle are congruent to two angles in the trapezoid.]

Hold the figure (trapezoid) with the longest side toward you. Notice the fold line down the middle. Fold the lower left corner (acute angle) to the middle of the bottom side. Unfold it. Tear along the two fold lines to make the fourth and fifth pieces (triangle and square).

[Discuss the shapes. The triangle is similar but not congruent to the other triangles; the square is similar but not congruent to the original square; the trapezoid has two right angles.]

Hold the figure (trapezoid) with the longest side toward you and right angles to the left. Fold the top right corner (obtuse angle) to the opposite corner (right angle) so that the top side now coincides with the left side. Unfold it. Tear along the fold to make the sixth and seventh pieces.

[Discuss these last two shapes. The triangle is congruent to the other small triangles; the parallelogram, a four-sided figure with opposite side parallel, has two angles congruent to the smaller angles in the triangles.]

Extensions

- [Tangram-graphing Grid activity](#) (pdf)

Rearrange tangram pieces to make something other than a square (e.g., a sail boat, a bird, etc.)

- [Geometry Triangle Puzzle](#) (pdf)

Authors

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