

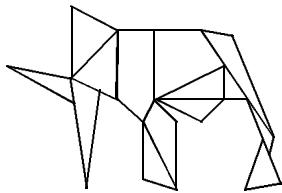
New Shapes from Old

For ages 5 and older.

Archimedes was a mathematician who lived in ancient Greece more than 2,000 years ago. He was fascinated by shapes. One thing he liked to do was play a game called Stomachion. To play the game, try to make different shapes or pictures using a set of 14 shapes.

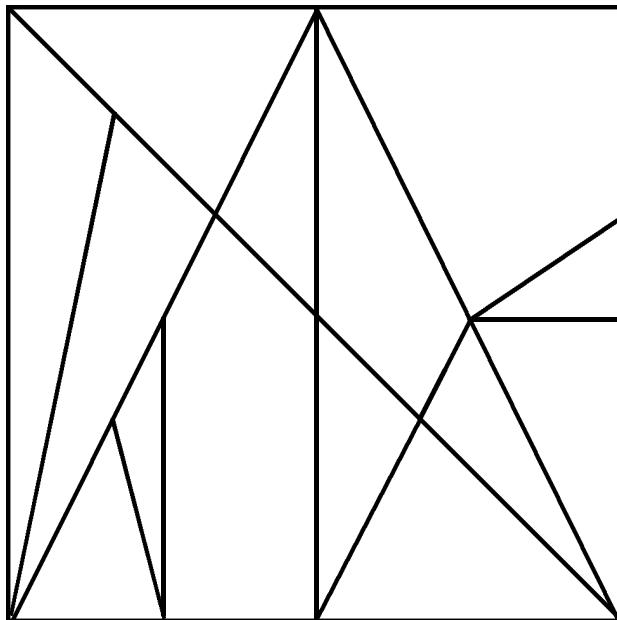
You will need

- game piece pattern shown below
- lightweight cardboard
- scissors
- paper
- pencil



What to do

1. Ask an adult to help you use a copier to enlarge the pattern below until it is about 6 inches across.
2. Cut out the Stomachion game pieces and trace them on cardboard. (If you are not allowed to use scissors, ask an adult to help you.) Then cut out the cardboard pieces.
3. Use the Stomachion pieces to make new shapes. The only rules are that you must use all the pieces, they must lay flat, they must touch on at least one side, and they cannot overlap. Can you make a shape that looks like an elephant?
4. When you make an interesting picture or shape, use a pencil to trace around the pieces on another piece of paper. Then give the outline of the shape to a friend to see if he or she can make it too!



Learning More

Burns, Marilyn.

The Greedy Triangle.

New York, NY: Scholastic, 1994.

Tells the story of a triangle who's tired of being a triangle, so it goes to the "shape-shifter," who changes the triangle's shape by adding sides and angles.

For children.

Dodds, Dayle Ann.

The Shape of Things.

Cambridge, MA: Candlewick Press, 1999.

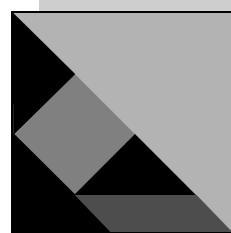
A rhyming picture book that reveals how simple shapes come together to form houses, boats, and other things in the world.

For children.

National Library of Virtual Manipulatives for Interactive Mathematics: Geometry: Grades Pre-K–2.

matti.usu.edu/nlvm/nav/category_g_1_t_3.html

Includes 12 interactive online geometry games and applications for children ages 5 and up. For children.



Shape Games

Archimedes was not the only mathematician who loved shape games. Another famous mathematician, Lewis Carroll (the author of *Alice in Wonderland*), liked to play a Chinese shape game called Tangrams. No one is quite sure where or when the Tangram puzzle was first invented; however, the first Tangram books were published in the early 1800s. Tangrams is played like Stomachion, but there are only 7 pieces (called "tans") instead of 14. Today, people have invented more than 1,000 Tangram designs, using just the 7 tans.