



Children's Museum of Houston

Tangram Challenge

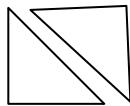
Introduction: Tangrams are 7-piece puzzles that can be assembled into a square—or thousands of other shapes! They are ideal for improving spatial reasoning and geometry properties. Discuss the properties of each shape while introducing terms like line, angle, vertex, side, diagonal, and parallel.

Materials:

- Sets of 7 Tangram pieces in baggies (2 small triangles, 2 large triangles, 1 medium triangle, 1 square and 1 parallelogram)
- Yellow sorting tray

What to do:

- i. Depending on the size of the group, you can place children in pairs or have them work individually. Each group or individual will get a set of 7 tangram pieces.
- ii. Explain that artists and graphic designers use geometric shapes and designs to create works of art and design advertisements, roads or buildings. They can visualize, or look at in their heads, their plans to figure out which idea will work best.
- iii. In this activity, you are challenged to use 7 tangram pieces—2 small triangles, 2 large triangles, 1 medium triangle, 1 square and 1 parallelogram—to create one larger shape. Think about how two similar triangles can fit together to form other shapes such as a square (show them how to design a square as shown below). Have the children create the square with the pieces.



- iv. Encourage students to make large square using all 7 tangram pieces.
- v. Walk around and help children as needed, but do not give them the answer.
- vi. When children come up with solutions, have children share solutions to the group. Discuss all the different ways that the group came up with.
- vii. Then challenge children to create other shapes such as a triangle, parallelogram, rectangle, or hexagon. See the next page for possible solutions.

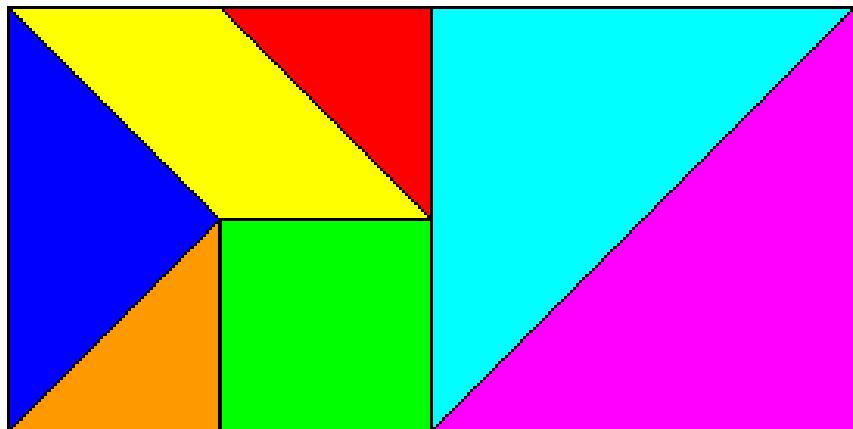
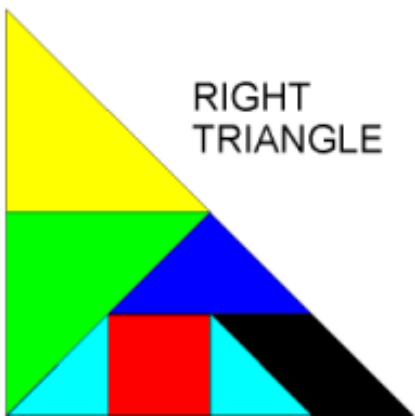
Questions to Ask:

- Can you use small triangles to copy the shape of a square? What other shapes can you copy with a square?
- What shapes can be used to copy larger shapes?

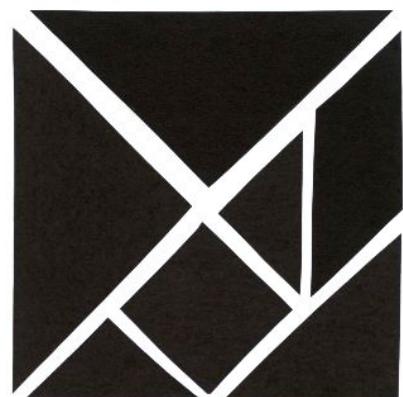
Extensions:

- Challenge children to create their own designs.
- Have students trace shapes on construction paper and cut them out. Create designs by gluing them to another piece of construction paper. Invite students to share what they have created with the group. Display finished creations in the classroom.

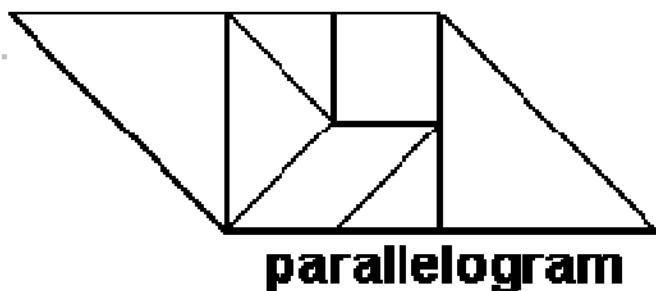
Sample Solutions



RECTANGLE



SQUARE



parallelogram