

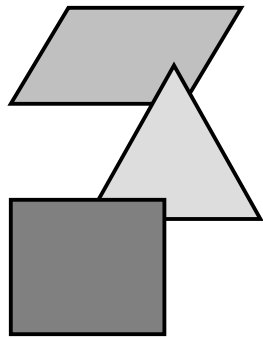


# Tangrams

<p><b>THE BASICS</b></p>	<p><b>THE TOOLBOX</b></p>	<p><b>EDUCATION STANDARDS</b></p>	<p><b>Geometry Content Math Standard:</b> Using visualization and spatial reasoning to analyze characteristics of two-dimensional geometric shapes in order to understand geometric relationships.</p>
<p> Grade Level: K-8</p>	<ul style="list-style-type: none"> <li>• 1 set of 7 tangram pieces (2 sets for younger students)</li> <li>• Cardboard</li> <li>• Scissors</li> <li>• Tangram cut-out sheet</li> </ul>	<p><b>SAFETY CONCERNS</b></p>	<p>Make sure the younger students do not put small tangram pieces in their mouths.</p>
<p> Estimated Time: 30 min.</p>		<p><b>FOR KIDS WITH DISABILITIES</b></p>	<p>Visually-impaired students may need time to become familiar with the tangram pieces. Mobility-impaired students may need proportionately larger pieces.</p>



**Educational Objective:**  
To develop an understanding of spatial relationships by making various shapes using triangles, squares, and parallelograms.

**What to Do:**

- Copy the activity sheets.
- Cut out the tangrams using heavy colored cardboard, using several different colors. (Or use purchased plastic tangrams.)
- Older children can cut out their own tangrams.
- Be sure to keep individual tangram sets together.
- Distribute tangram sets to groups of students, alternating colors for each group.

**Questions to Ask Students As They Do This Activity:**

- What did you discover about triangles?
- What process did you use to figure out the shapes?
- How is a parallelogram different from a trapezoid? (Refer to the Tangram Exploration Chart.)

### Why It Happens:

By using the tangram shapes, children learn, for instance, that two identical right isosceles triangles fit together to form a square. Additionally, children learn that three basic shapes—triangles, squares, and parallelograms—can fit together to form many other shapes and figures. Experiences in exploring and understanding relationships of shapes to each other is an important prerequisite for advanced mathematics. The opportunity to explore shapes introduce vocabulary and geometric concepts that are part of mathematics and everyday problem-solving, such as storing articles in a tight space or building a model car.

## WEB SITES

- **Tangram Puzzle**  
<http://enchantedmind.com/tangram/tangram.htm> (Grades K-8)
- **Tangrams**  
<http://explorer.scrtec.org/explorer/explorer-db/html/783750363-447DED81.html>  
(Grades 4-12)

## SOFTWARE

- **Thinkin' Things: All Around Fripple Town**  
Edmark Corporation, 1999  
(Grades K-3)
- **Geometry World: Middle Grades Interactive Explorer**  
Cognitive Technologies Corp., 1999  
(Grades 3-8)

## READING ROOM






- D'Amico, Joan and Karen E. Drummond. **The Math Chef: Over 60 Math Activities and Recipes for Kids**. Wiley, 1997. (Grades 3-8)
- Hewitt, Sally. **Puzzles**. Raintree Steck-Vaughn, 1996. (Grades K-4)
- Hewitt, Sally. **Shapes**. Raintree Steck-Vaughn, 1996. (Grades K-4)

### Career Connections

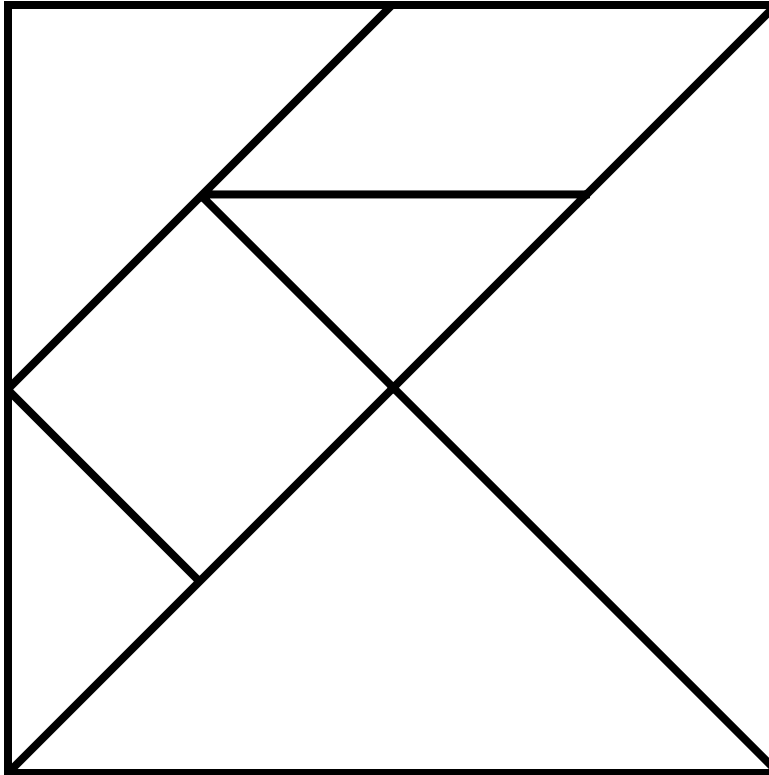
Architects and architectural engineers use their knowledge of how shapes work together to design all kinds of buildings.

# TANGRAMS ACTIVITY SHEET

1. Work with a partner to complete the Tangram Exploration Chart. Are you able to make all the shapes? What is the largest number of tangram pieces you can use in creating each shape?

<b>Tangram Exploration Chart</b>					
<b>Shapes to Make</b>					
<b>Number of Tangram Pieces</b>	<b>Triangle</b> 	<b>Rectangle</b> 	<b>Square</b> 	<b>Parallelogram</b> 	<b>Trapezoid</b> 
<b>1</b>					
<b>2</b>					
<b>3</b>					
<b>4</b>					
<b>5</b>					
<b>6</b>					
<b>7</b>					

## Tangram Cut-Out



Use this master to create your own tangram sets! Carefully cut out the tangrams using heavy cardboard or card stock. You can use several different colors to create different sets of tangrams. Be sure to keep individual tangram sets together. Then, using your new tangram pieces, fit all 7 shapes together within the lines of each of the figures on the following pages.

Can you think of any other shapes to make with your tangrams?

Can you create new puzzles for your friends?

