

## Legend of the Tangram

**Objective:** Use tangrams to investigate the properties of two-dimensional shapes.

**Materials:** Legend of the Tangram Activity Sheet and Transparency  
A Message from Tan Activity Sheet  
One set of Tangrams per participant  
One box (Approximately 8" x 6" x 2" - must be large enough for tangrams to fit into and slide along the bottom of the box)

### Procedures:

1. Place the tangram pieces in the box prior to the start of the session.
2. Introduce tangrams through the "What's In The Box?" activity. Show and shake the box asking participants to describe the objects in the box. As participants narrow down options and start to name geometric shapes, tell them that they must specifically describe the shape for you. If they correctly describe a shape to your specifications, take that shape out of the box, show it to the group, and then place it on the overhead projector. Participants describing a triangle should only be shown the middle-sized triangle and be required to name larger and smaller triangles in the box. Continue these procedures until the participants have described all seven of the pieces, making sure specific properties of a piece are used rather than the name for the piece. After all pieces have been named, introduce tangrams as one of the manipulative materials useful in demonstrating geometric concepts.
3. Pass out sets of tangrams and begin activities investigating the properties of squares, triangles, and parallelograms. Begin by having participants take the two small triangles and use them to make a square, triangle, and parallelogram. After this has been done, use the two small triangles and the middle-sized triangle to make a square, triangle, and a parallelogram. Add one large triangle to the three triangles already being used to again make a square, triangle, and parallelogram. As participants complete these introductory activities stress the idea that "given two congruent triangles from a tangram set (consisting of any number of pieces) these pieces can always be used to make a square, a parallelogram, and a larger triangle." Discuss other properties of these shapes that participants have observed.
4. Show the "Legend of the Tangram" overhead transparency, tell the legend, and then distribute these activity sheets. Participants have already made the two-, three-, and four-piece squares. Ask them, using any pieces they select, to attempt the five-, six-, and seven-piece squares.

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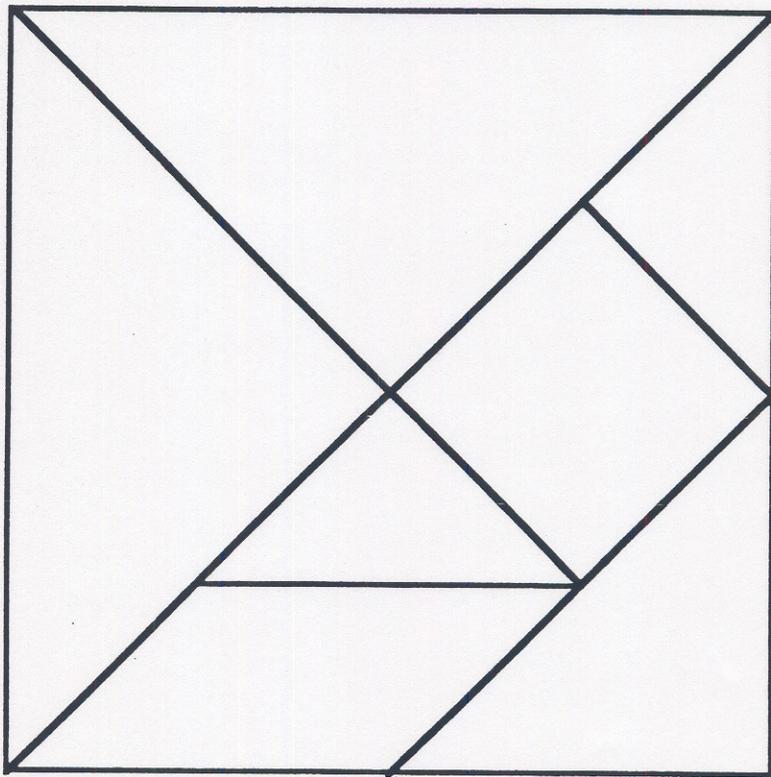
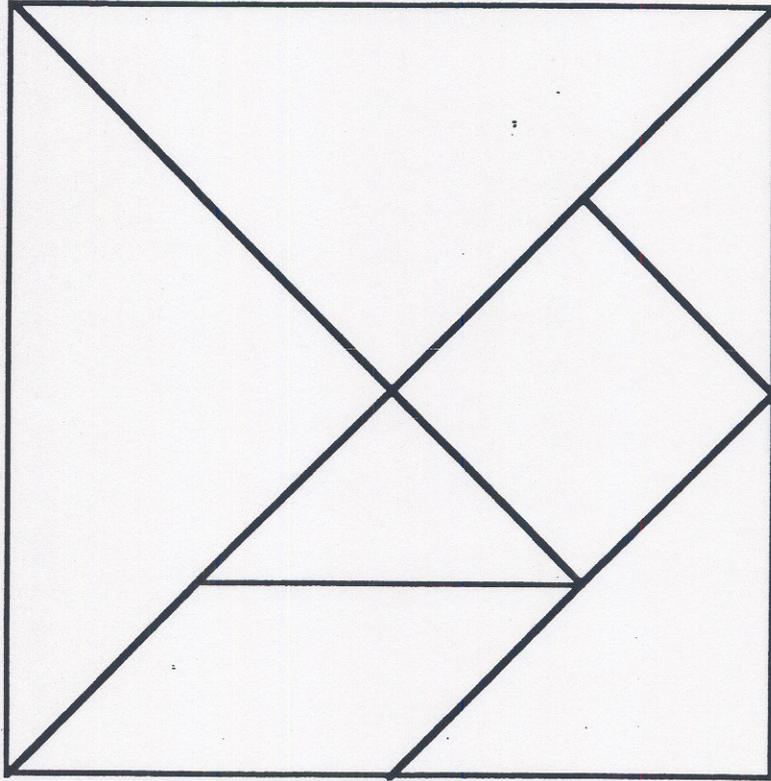
During the last five minutes of the time you have allotted for this activity, challenge participants to solve Tan's problem and complete the seven-piece square.

5. As participants complete the seven-piece square, give them a copy of the "A Message from Tan" activity sheet; they can then attempt to "make Tan with tangrams" on this sheet.
6. Conclude activities with tangrams and have the participants keep their sets of tangrams for the next activity.

Notes:

1. Before beginning activities with tangrams, make sure that each participant has the correct seven pieces in the set of tangrams.
2. All squares are possible to make except for the six-piece square.
3. Try to make sure that all participants have success with the seven-piece square. One easy way to make this square that relates to this activity and to the properties of the diagonals of a square is to have participants use the two large triangles to make a larger triangle and then exactly cover this triangle with the remaining five pieces. When this is done, participant will have two large, congruent triangles that will make the seven-piece square.
4. Children's book to use with this activity is *Grandfather Tang's Story* by Ann Tompert, ISBN 0-517-57487-4.

# Tangram Patterns



## Legend of the Tangram



Tan, the son of a Chinese nobleman, received a square tile which he valued more than anything else he owned. Because the tile was very beautiful and Tan was very proud of it, he showed the tile to all his friends. While doing this, Tan dropped the tile one day. It broke into seven pieces.

Legend tells us that Tan was sad and spent the rest of his life trying to put the pieces together. He was able to make a triangle, a house, a cat, and a bird, but he could never make the shape of the original tile.

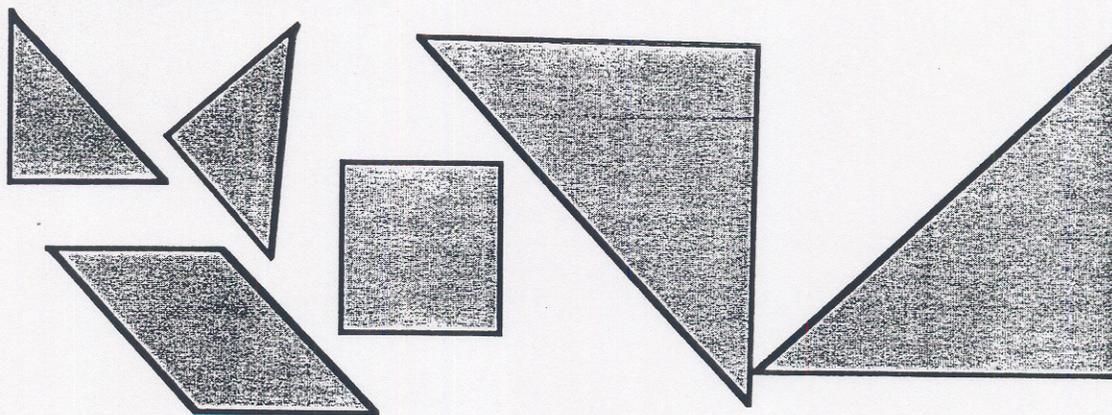
Use the tangram pieces to make squares. Can you make a square with:

Number of Pieces

2  
3  
4  
5  
6  
7

Yes or No

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## A MESSAGE FROM TAN

By using the manipulative materials and problem-solving strategies presented during this staff development module, you have made the seven-piece square that I spent my life trying to complete. I congratulate you on this accomplishment.

