

The background of the cover is filled with various 3D geometric shapes, including triangles, squares, and rectangles, rendered in a grayscale, shaded style that gives them a three-dimensional appearance. Some shapes are solid black, while others are white with black outlines. They are scattered across the page, creating a dynamic and abstract composition.

# SUPERTANGRAM

A C T I V I T I E S 1

Henri Picciotto

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For more activities involving superTangrams and related shapes, see [<http://www.picciotto.org/math-ed>](http://www.picciotto.org/math-ed). Search for "puzzles".

# SUPERTANGRAM

## A C T I V I T I E S

Henri Picciotto

**BOOK 1**

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## NOTES TO THE TEACHER

SuperTangrams™ are the fourteen geometric shapes that are formed by joining four isosceles right triangles (half-squares) edge-to-edge. They are called SuperTangrams™ because their underlying geometry is that of the old Chinese tangram puzzle. In fact, three of the SuperTangrams™ are identical to three of the tangram pieces. As with the tangrams, you can combine the SuperTangrams™ in an infinite number of ways to create various shapes.

Like tangrams and pentominoes (to which they are also related), the SuperTangrams™ offer a recreational approach to many mathematical questions. Solving puzzles can help students develop their intuitive feel for two-dimensional space which will provide a solid foundation for later, formal study of geometry.

### How to Use This Book

The puzzles in this book are self-explanatory: Cover each figure with SuperTangrams™. The pieces should not overlap or stick out beyond the boundaries of the figure. None of the puzzles requires the use of all fourteen pieces.

The pieces fall into four sets titled Doubles, Right Trapezoids, Parallelograms, and Rectangles. As much as possible, the puzzles are ordered by difficulty within each set, the easier ones coming first. To some extent, the sets are also ordered by difficulty. You may want to keep copies of the puzzles in each set in separate folders. This will help keep the puzzles organized, and will make it easy for a student to take a whole set to his or her desk.

Students may solve the puzzles in any order, but it is important that they keep track of their successes by marking on the checklist the puzzles they solved correctly. This allows them to see their progress, and motivates them to solve more and more puzzles. If students are frustrated at a given level, encourage them to try easier puzzles. Each set starts with relatively easy puzzles.

Use the shapes on page 1 as patterns to make SuperTangrams™ or as a check to make sure you have a complete set. In fact, it is a good idea to assign students to check the sets periodically, to see that they are complete.

For more SuperTangram™ puzzles, see *SuperTangram™ Activities Book 2*, the companion to this book. The two books may be used either simultaneously or in succession.

NAME \_\_\_\_\_

Use this checklist to keep track of which puzzles you have solved.

Doubles

1 2 3 4 5 6 7 8 9 10 11 12 13

Right Trapezoids

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Parallelograms

1 2 3 4 5 6 7 8 9 10

Rectangles

1 2 3 4 5 6 7 8 9 10 11

