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## FEATURE

# Teach the square...and the rectangle

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Teaching these two geometric shapes is like a line from an old song: “You can’t have one without the other.”

The square and rectangle go hand in hand—maybe not like “love and marriage” or “horse and carriage,” but perhaps best understood in terms of the other. Children have undoubtedly had experience with the two shapes in objects all around them. They begin learning geometric shapes in a more formal way in preschool and are usually expected to know how to make and take apart shapes by the time they finish kindergarten.

*Texas Child Care* has posted two previous articles on teaching geometric shapes: *Go round: Teach the circle shape* in Spring 2015 and *Teach the triangle* in Spring 2017. Find them on the website at [www.childcarequarterly.com/backissu.php](http://www.childcarequarterly.com/backissu.php).

### What’s the difference?

By definition a **square** is a flat figure with four equal sides and four right-angle corners. A **rectangle** is the same except that two of its parallel sides are longer than the opposite sides.

Squares and rectangles are part of the math and geometry that developed in response to the

needs of ancient civilizations. (Some believe the square symbolizes civilization.) Ancient peoples needed to measure plots of land, build structures, collect taxes, describe constellations, and create calendars, all of which required numbers, shapes, and calculations.

Of the basic geometric shapes in today’s world, the rectangle is the most common. The rectangle and its square soul-mate form the structure of most buildings. As

familiar and trusted shapes, they represent order and stability.

Because a square has four equal sides, it can also be said to symbolize the seasons (spring, summer, fall, winter), cardinal directions (north, east, south, west), and the elements (fire, water, air, earth).

In nature, we see no naturally formed squares or rectangles. Trees, branches, and leaves, for example, are uneven, rounded,



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and irregular. The same is true of rocks, mountains, rivers, oceans, and icebergs. Nonetheless, nature has its own structure, as shown in *Patterns in Nature* and other books by science journalist Philip Ball (See [www.thestar.com/entertainment/books/2016/05/28/patterns-in-nature-explores-worlds-chaotic-beauty.html](http://www.thestar.com/entertainment/books/2016/05/28/patterns-in-nature-explores-worlds-chaotic-beauty.html)).

## Learning activities

Teaching the square and rectangle can fit easily into daily routines and learning center themes. To help preschoolers distinguish between the square and rectangle, offer hands-on activities and ask questions to encourage close observation and comparison.

### Circle time

As children gather, ask them to observe the sides of the room. Are

the walls straight or curved? How many walls are there? Is the room a square or a rectangle?

Read a book such as *Squares* by Yusuke Yonezu. Each page has square or rectangular holes, which—as you turn the page—allow you to see shapes, such as square windows or a rectangular door.

Challenge children to identify each of the two shapes in the classroom and place a sticky tab on each, where possible. They might identify a square tabletop or bulletin board, for example, as well as a rectangular cubbie and a book. Encourage children to compare the size of the shapes. For example: Which is larger—the book or the door?

### Math and manipulatives center

Provide squares and rectangles

cut out of construction paper or cardboard. Label the shapes in block lettering. Point out the length of the sides. Provide lengths of yarn and demonstrate how to measure a shape's sides. Use vocabulary such as *long*, *wide*, *same*, *equal*, and *angle*.

Invite children to pat lumps of clay or playdough into squares and rectangles. Have them test the lengths of their shape's sides using string to measure.

Encourage children to compare the size of each shape. For example: Which square is larger (or smaller) than another square?

Invite children to make a square on a sheet of paper using toothpicks, straws, or ice-cream sticks. As children become more adept, challenge them to turn the square into another shape: How can you turn the square into a rectangle (or vice versa)? Similarly, invite children to tear paper into a square shape, and then turn it into a triangle by folding or cutting the square diagonally.

### Outdoor walk

Take a walk with children in the playground or neighborhood. Ask them to find examples of squares and rectangles. You may see square and rectangular signs, windows, and buildings, for example. Snap photos and print them when you return to the classroom. Place the photos in a binder, label each one, and place the binder in the library center for children to view on their own.

### Snack

Have children wash their hands before helping prepare and serve snack. Ask about the shape of the paper napkins. Provide plastic

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knives so children can cut cheese into squares to eat with square crackers. Invite children to cut toasted whole wheat bread slices into fourths and spread them with peanut or almond butter. Talk about the number of sides and corners of each piece.

## Dramatic play

As children play in the home center, encourage them to identify shapes, such as a square plastic container or rectangular cereal box. (If necessary, stock the center with appropriate items beforehand.)

Invite children to use cardboard boxes to make a train or a house. Ask how many rectangle or squares they see in a box (top, bottom, four sides). As they decorate their structures, talk about the shapes of windows and doors and lengths of the sides.

## Music

Have each child hold a different shape (square, rectangle, triangle, circle) and sing The Hokey Pokey. Instead of a body part, children will put the named shape into the middle. "Put a square in, put a square out. Do the hokey pokey and shake it all about..."

## Block center

As children play with blocks, discuss the difference between flat (two-dimensional) shapes and solid (three-dimensional) shapes. Compare a paper square to a wooden cube, for example. How are they the same? How are they different? Do the same with a rectangular block. Press a block into paint or playdough so children can see one of its flat sides.

## Art center

Provide square and rectangular sponges that children can dip into paint and press onto sheets of paper.

Provide paper cut-outs of squares and rectangles in different sizes that children can glue to construction paper to make a collage. Children may want to spread glue on top of the shapes and sprinkle with glitter, confetti, or sand.

Read *Perfect Square* by Michael Hall. The book begins with an illustration of a large red square that changes in subsequent pages into a babbling fountain, a garden, a park, and other images. The illustrations may stimulate creativity and inspire children to tear, cut, shred, or crumple paper squares into collages.

Borrow a patchwork quilt from a family or friend. Or borrow a book from the library, such as *Patchwork & Quilting with Kids* by Maggie Ball. Encourage children to identify the squares and rectangles in a quilt pattern. Children may be inspired to make a patchwork placemat, a baby quilt, or a larger group quilt. Parents and friends can donate fabric scraps, children can cut the shapes, and a volunteer may sew the pieces together.

## Writing center

Envelopes, paper, greeting cards, note cards, and stamps all offer opportunities for recognizing square and rectangular shapes. Families and friends may recycle these items for you. Stock the center with writing instruments, such as ballpoint pens, graphite pencils, colored pencils, and markers. Clipboards provide a hard surface

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for writing. Other supplies may include a stapler, scissors, glue, rubber alphabet stamps, and ink stamp pads.

Younger children may engage in pretend and practice writing, while children aged 5 and older may write real notes to family members and friends. Children may mail their notes in a pretend mailbox in the dramatic play center or in a real mailbox on a street corner.

## Library center

Stock the library with books about squares and rectangles. Here's a sampling you might find in a library or bookstore:

*Cuadrados/Squares: Cuadrados a nuestro alrededor/Seeing Squares All Around Us (Figuras Geometricas/ Shapes)* by Sarah Schuette (2012), a book of simple illustrations and photos that show squares in everyday objects, in Spanish and English.

*Find the Square* by Britta Teckentrup (2016), a simple and colorful book that introduces preschoolers to shapes.

*How Many Squares: Geometric Puzzlers for 1st and 2nd Graders (Vol. 1)*, by C. Mahoney (2013), pages of illustrations that challenge children to count the squares in different diagrams.

*Rectangulos* by Sarah Schuette (2010), Photos and illustrations show rectangles in everyday objects, in both English and Spanish.

*Squares & Other Shapes: With Josef Albers* (2016), a board book that takes children through this artist's range of geometrics.

*Squares* by Jennifer S. Burke (2000), a small book that shows squares in a city.

*Square Cat* by Elizabeth Schoonmaker (2011), a delightful tale about the only square cat in town and her round friends.

*Two Short, Two Long: A Book about Rectangles* by Christianne C. Jones (2006), an introduction to rectangular items in a school. ■