

Geo Shapes

Summary

Students will learn how to combine shapes to make other shapes using Geoboards.

Main Core Tie

Mathematics Grade 1

[Strand: GEOMETRY \(1.G.\) Standard 1.G.2](#)

Additional Core Ties

Mathematics Grade 1

[Strand: GEOMETRY \(1.G.\) Standard 1.G.1](#)

Materials

- *Try It With Triangles*
- [Shape Vocabulary Cards](#) (pdf)
- [Triangles template](#) (pdf)
- Scissors
- Glue
- Construction paper
- Geoboards and geobands
- [Geo Shapes](#) (pdf)
- Wikki Stix®
- Toothpicks
- Mini marshmallows
- Pocket Chart
- Shape Category Cards
- Shape Pictures for sorting
- [Shape Sort Book](#) (pdf)

Additional Resources

Books

- *Try It With Triangles*
, by Zelda King; ISBN 0-8239-8873-2
- *Circus Shapes*
, by Stuart J. Murphy; ISBN 978-0064467131
- *The Greedy Triangle*
, by Marilyn Burns; ISBN 978-0590489911
- *Goldie Locks and the Three Squares*
, by Grace Maccarone; ISBN 978-0590543446
- *The Shape of Things*
, by Dayle Ann Dodds; ISBN 978-1564026989
- *Circle City*
, by Dana Meachen Rau; ISBN 978-0516265421
- *Twizzlers: Shapes and Patterns*
, by Jerry Pallotta; ISBN 978-0439340533

Media

Mathville 1 <http://www.mathville.com/> Activities; 4 Identify, 5 Sort, and 6 Build (shapes)

Background for Teachers

Students should already be able to recognize and create the four geometric shapes: circle, square, rectangle, and triangle. They are now ready to be taught how to combine shapes to make other shapes. (e.g., make a square from two triangles). *Geoboards* can be used to teach children how to compose and decompose plane figures.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.

Instructional Procedures

Invitation to Learn

Begin by reading the book *Try It With Triangles*. Ask them to name the geometric shapes that they see in the story. Display the *Shape Vocabulary Cards* as the students name them from the book.

Instructional Procedures

Make copies of the *Triangles* template

Instruct students to cut out the triangles to make pictures or designs by combining triangles.

Glue them on a piece of construction paper.

Display the pictures in the classroom.

Geo Shapes

Use an overhead geoboard (if available) to demonstrate how to manipulate the bands on the board. (It is also helpful to establish some safety routines so the elastics don't slip and hit other children.)

Pass out the Geoboards and geobands. (Provide free exploration time for students to manipulate the geoboards before using them in a math lesson the first time.)

Provide time for the students to practice making the four geometric shapes on the geoboards (or shape worksheets).

The students can make rectangles, squares, and triangles on one side and a circle on the reverse side of the geoboard.

Ask the students to create a square by combining two equal triangles using the elastics or geobands. Next, ask them to make a square by combining two rectangles using the elastics.

Ask them to make a rectangle by combining two squares.

Ask them to make a rectangle by combining two triangles.

Turn the board over to the circle side and ask them to create a circle.

Pass out the *Geo Shapes* worksheet and ask the students to connect the dots on the arrays to create shapes by combining the shapes they have used on the geoboards.

Wikki Shapes

Provide Wikki Stix® (or pipe cleaners) for students to use to create common two-dimensional geometric shapes (e.g., circles, squares, triangles, and rectangles).

Provide toothpicks and marshmallows and instruct students to create three-dimensional shapes (e.g., a rectangular prism, a cube, or a pyramid).

Shape Sort

Using the website (see Additional Resources section) download the shape sort cards to do the pocket chart activity.

Place the six category cards across the top of the pocket chart.

Look at each of the pictures for sorting.

Place them under the correct category card (e.g., ice cream cone under triangle).

Using the *Shape Sort Book* template, create an individual book for each child to draw and name pictures for each of the four simple geometric shapes.

Extensions

The National Library of Virtual Manipulatives website provides students opportunity to create geometric shapes using virtual geoboards.

Ask the students to make the following common pattern block shapes on the geoboard: Rhombus - You can fit two triangles inside of it. Trapezoid - You can fit three triangles inside of a trapezoid or one blue rhombus and one triangle. Hexagon - You can fit six triangles or three blue rhombus or two trapezoids inside of it.

Family Connections

Blank copies of the *Geo Shapes* worksheet can be sent home for students to share with their families in creating geometric shapes.

Provide families with the website URL for the *National Library of Virtual Manipulatives*.

The website address for the *Shape Sort* can be given to families, as well.

Assessment Plan

Using the geoboards or *Geo Shapes* worksheet you can assess the students' understanding of naming and creating common geometric shapes. You can also assess their ability to combine common geometric shapes to make other shapes.

Use the Wikki Stix® to assess if the students can name the shapes they create.

Using the shape sort you can assess whether students can sort common geometric figures.

Bibliography

Research Basis

Hellwig, S. J., Monroe, E. E., & Jacobs, J. S., (November 2000) *Making Informed Choices: Selecting Children's Trade Books for Mathematics Instruction. Teaching Children Mathematics*. Retrieved November 18, 2006 from www.questia.com.

Trade books allow students to interact with mathematics in context, helping them draw meaningful connections between experiences in the classroom and life outside the classroom. They can provide an appealing setting that shows how mathematics exists in our world. Trade books can also give students the opportunity to develop language skills as they develop mathematical skills.

Chapin, S. H., Johnson, A. (2000). *Math Matters: Understanding the Math You Teach*. p.145-146.

This research suggests that students first learn to identify shapes and figures only on the basis of appearance. They may not recognize properties of figures, and orientation affects how they view a figure. Classroom instruction in the early grades needs to include example of a variety of each type of shape shown in various orientations.

Authors

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