

CONSTRUCTING TASK: Build a Shape

Approximately 1 day

STANDARDS FOR MATHEMATICAL CONTENT

MCC1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

MCC1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

For this task you will want to cut drinking straws and pipe cleaners and prepare in plastic bags prior to the start of this task. Cut the straws into fourths and the pipe cleaners into fourths. Students should be familiar with each shape before being asked to construct.

ESSENTIAL QUESTIONS

- How can I create a shape?
- What makes shapes different from each other?
- How do shapes fit together and come apart?
- How can a shape be described?

MATERIALS

- *The Greedy Triangle* by Marilyn Burns or other similar book
- Drinking straws
- pipe cleaners
- plastic sandwich bags
- Straw Shapes Recording Sheet
- Chart paper
- Long pieces of yarn (or other similar material such as ribbon, elastic string, etc.), one per student

GROUPING

Large Group

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Part I

Read *The Greedy Triangle*, a book about a shape that wanted to be something else (or other similar book about various shapes). Discuss the shapes in the story, what the shape-shifter does to create a new shape (adds one side and one angle) and the real world connections in the pictures. As you are reading, record any new information from the story on chart paper.

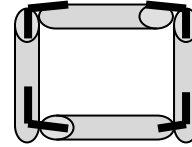
Part II

Ask students if they think they could build shapes using their bodies. Give each child a long piece of yarn (or other similar material), to use to create a shape. Call out a shape and have students create a way to use their bodies and the yarn to make the shape (For example, name a triangle for students to make. Students could spread their feet apart while standing on the yarn, lift up the two ends of the yarn and bring the two ends together with raised hands to create a triangle). Repeat this activity by naming several other shapes for students to create independently or with a partner.

Part III

Students will use straws and pipe cleaners to recreate a triangle, rectangle, square and trapezoid. Tell the students that the straws are the sides and the pipe cleaners are the corners. Model how you connect the straws and pipe cleaners to create a shape (sample below). The teacher will read *The Greedy Triangle* aloud to the students again. The students will create the shapes with the straws and pipe cleaners as the teacher comes to each shape. This will allow students to practice constructing shapes with the materials provided.

The teacher will hand out the Straw Shape Recording Sheet and the students will work independently to complete. Allow students to look through the book or around the room to help with the real world connections.



FORMATIVE ASSESSMENT QUESTIONS

- How many sides are in a triangle, rectangle, pentagon, etc.? Can you show me?
- How are these shapes different from one another?
- How are the shapes alike?
- How do shapes fit together and come apart?

DIFFERENTIATION

Extension

- Challenge students to make other shapes with the straws and pipe cleaners. Ask students questions similar to: “Would you still have a triangle if two sides were longer than the third side? Why or why not?”
- Allow students to explore creating a cube with the straws and pipe cleaners.

Intervention

- Supply students with model shapes to follow as they create each shape. Assist with the first shape.

Georgia Department of Education
Common Core Georgia Performance Standards Framework
First Grade Mathematics • Unit 3

Name _____

Straw Shapes Recording Sheet

Directions: Create the following shapes using straws as the sides and pipe cleaners as the corners. Fill in the chart below.

Name	Number of Sides (straws)	Number of Corners (pipe cleaners)	Draw the Shape	Write an object that is similar to this shape
Triangle				
Rectangle				
Square				
Trapezoid				
Hexagon				