CONSTRUCTING TASK: Shape Detective

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.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

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

Students should be familiar with two and three dimensional shapes. The students will investigate the similarities and differences in this lesson.

ESSENTIAL QUESTIONS

- How are shapes alike and different?
- How can a shape be described?

MATERIALS

- Geometric solid models (for tracing)
- 2-D shape models (for tracing)
- Student copy of graphic organizer
- Sticky notes/note cards
- *Shapes That Roll* by Karen Berman Nagel

GROUPING

Large group, Independent

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Part I
Read *Shapes That Roll* by Karen Berman Nagel or a similar book about shapes. Ask students to picture their favorite shape in their head. Tell them it can be a 2D or 3D shape. Give each student a sticky note or note card to draw the shape. Have students return to the carpet when done. Ask, "How can we organize your favorite shapes?" Have the students sort their favorite shapes, naming and describing their shape as they put it in place. Discuss results.

Part II
Tell the students you noticed that some students chose 2D shapes like triangles, while others chose 3D shapes like cubes (or another 3D shape chosen by students. If a student did not choose, you could add one as your shape.) Draw everyone's attention to the sort/graph. Some of these shapes have attributes in common and some are very different. Today, you will be detectives and discover how two shapes you choose are alike and different.

Lay out a set of 3-dimensional shapes and 2-dimensional shapes. Have each student choose a shape. Then have students choose a partner and compare their shapes with each other. They will then each complete the section on their "Shape Detective" activity page. Have students do this three more times with new partners/shapes. Remind them to compare and contrast their shapes. When time is up, have students choose one section of their "Shape Detective" page to share with the class. During share time, ask, "Did you find any similarities or differences with both of your shapes?"

FORMATIVE ASSESSMENT QUESTIONS

- How would you describe the shapes you chose?
- Tell me about the faces on your shape.
- How are these shapes alike? Different?
- Are students counting sides, faces, corners?
- Do most students choose the solid they are most familiar with, such as a rectangular prism? Which ones are they not choosing?

DIFFERENTIATION

Extension

- Once students have mastery of comparing 3D shapes, have them compare 2D and 3D shapes and discuss similarities and differences they notice.

Intervention

- To increase awareness of shape attributes, have students choose a 2D shape to compare and contrast with another 2D shape.

Name_____ **Date**_____

Shape Detective: Draw or trace one shape in each box.

A _____ is similar to a _____because they _____

They are not alike because _____ _____

Shape Detective: Draw or trace one shape in each box.

A _____ is similar to a _____because they _____

They are not alike because _____ _____