



Sort it Out!

Grade Level: Kindergarten through second grade

Description: The students will engage in a sorting game using several household items. The object of the game is to collect an item during each round and to classify it under its formal shape name. When the students have finished the game, they will use what they learned to search the library for a variety of different 3D shapes on their own.

Objectives

- To identify three-dimensional shapes of different house hold objects.
- To describe the shape using defining attributes.
- To use a familiar physical model in order to determine attributes of each shape.

The Plan

Before playing this game, collect as many household items, or items familiar to young children, that are of regular 3D shape. Some Ideas to get your collection started are organized in the list below.

Sphere:

Balls

Hemisphere:

Bowl

Slurpee cup top

soup ladle

measuring spoon

Cone:

Party hat

Funnel

Snow cone cup

Cube:

Blocks (children's toys)

Cylinder:

Paper towel/ toilet paper roll

Pringles can

yogurt cup

oatmeal container

pill bottle

Triangular Prism:

Toblerone candy container

Rectangular Prism:

Cereal box

Macaroni & Cheese box

jewelry box

spaghetti box

Triangular Pyramid:

Can be constructed with toys or paper

Square Pyramid:

Ferraro Rochet candy (at Christmas)

To start the game, randomly place the items around the perimeter of the space you are using (do not group them by shape). As in the game, *Spoons*, there should be one less item in the center, than the number of students. You may also want to have your own model of each shape. Keep a list of the items in order of the number of each you have included in the center of the floor. You will want to play *Sort it Out!* in the order of largest number of objects to smallest.

For each round of the game, choose from one of your card shapes and show it to the students. Ask students if they know the name of the shape. If they don't know the name of the shape, ask the students if they can name any of the shapes that they see on each face, and what properties are special about them. If they know the name, ask them about the properties that they see that the shape has. After they see and hear the name of the shape, tell the students to "go!" and have them find the same shape by choosing

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from the items you organized. You may want to set a time limit on how long they get to find an appropriate item. Because there are fewer items of each shape than there are students, not everyone will be able to gather the correct shape for the round.

Once each student has an item for the round, have them state, one at a time, a property about the item that they picked up that led them to think it was the same shape as your given model. The similarities should be meaningful observations about the shape's properties, rather than having to do with properties such as color. The students should also be encouraged to say something different than what other students before them stated. For the student who has picked up a shape that is incorrect, have them state a difference between their shape and yours. If each student has stated a meaningful property, then they get a point, which can be tallied or kept track of by using something like stickers. If they did not state any meaningful property, have the student put their item back in the center with the other shapes.

Extensions:

1. In the library, have the students go on a scavenger hunt trying to find as many shapes from the sorting game as they can. The objects they find can be part of the library's structure. For example, in the Hackley Public Library in Muskegon, there is a stairwell inside a cylindrical tower. Students can describe or draw the cylinder and its attributes rather than picking up a physical object in the library.
2. Create a graph on the floor using blue masking tape for each axis and use laminated "**Sort it Out**" shape cards to label the "X" axis. Students will create a physical bar graph using the shapes by organizing them first by 3-dimensional shape, and next by cross sections. Discuss what shapes are more common than others. After making each physical graph on the floor, students create individual graphs on paper or as a group.

Suggestions:

To have this game run as smoothly as possible, it is less hectic when the students have designated spots to start and then return to their designated spots once they find their shapes. Chairs or carpet squares that are arranged in a circle may work well.

Children seem to have the most difficult time differentiating triangular prisms, triangular-based pyramids, and square-based pyramids. It might be helpful for students if they can hold your model of the shape before they go searching for their own.

It is important to remember to ask open-ended questions instead of yes or no questions. For instance, if you hold up a sphere and a student says it is a circle, tell them something about how we can make a circle flat on our paper. Then, instead of asking the student if the sphere is flat, ask them how it is different from a circle. You might also ask students about the shapes that make up the faces of three-dimensional objects, the number of those faces that the 3D object has, and the side lengths. For example, to distinguish a cube from a rectangular prism, children should notice that all of the faces are identical in a cube and not all identical in a rectangular prism that is not a cube.