

Materials Needed

- A variety of objects to sort based on different shapes, sizes, and colors. (examples: caps, plastic animals, fabric scraps, foam shapes, marbles, rubber ball, etc.)
- Blank paper

Grade Range

K-2

Topics/Skills

Science: Classification
Engineering: Material Attributes
Math: Problem Solving

Learning Standards

NGSS: [Science & Engineering Practices; Properties of Materials](#)

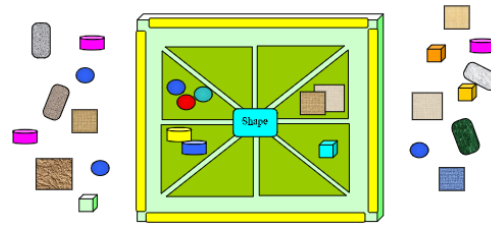
Duration

15-30 mins

Prep Time

5-10 minutes

Sorting Mat



Young scientists practice sorting and classifying in this activity by using a variety of easily found objects such as caps, fabric, plastic, foam shapes and/or marbles.

Activity Challenge

Explore the properties of objects by sorting them in different ways.

Preparation

1. Review the Materials Needed list and print out, or make a copy of, the sorting mat and Sorting Cards (see below).
2. Gather objects to sort and spread them out on a blank piece of paper (this will be the sorting mat).

To Do

1. Begin with the objects to sort and spread them out on the Sorting Mat (piece of blank paper).
2. Mix up the 5 Sorting Cards with properties on them and put them, face down, in a pile.
3. Turn over a card to determine the sorting property.
4. Sort the objects on the Sorting Mat (paper) by the property on the card, using as many sections as you need.
5. Have your student say why each object belongs in the section that was selected. For example, if the Sorting Card says *shape* they might say, "this ball is round like a circle, so I am putting it in the section with other objects that are circles."
6. After the objects are sorted:
 - a. Move all objects back onto the Sorting Mat (blank paper).
 - b. Put the Sorting Card that was just used on the bottom of the pile and turn over the next card
 - c. Sort the objects by the property on the new card using as many sections on the mat as needed.
7. If there is a property to sort that is not on the 5 Sorting Cards, use one of the blank cards to add it to the pile.

Guiding Questions

- How can materials be sorted based on their material properties?
- How can sorting materials reveal how they are similar/different?

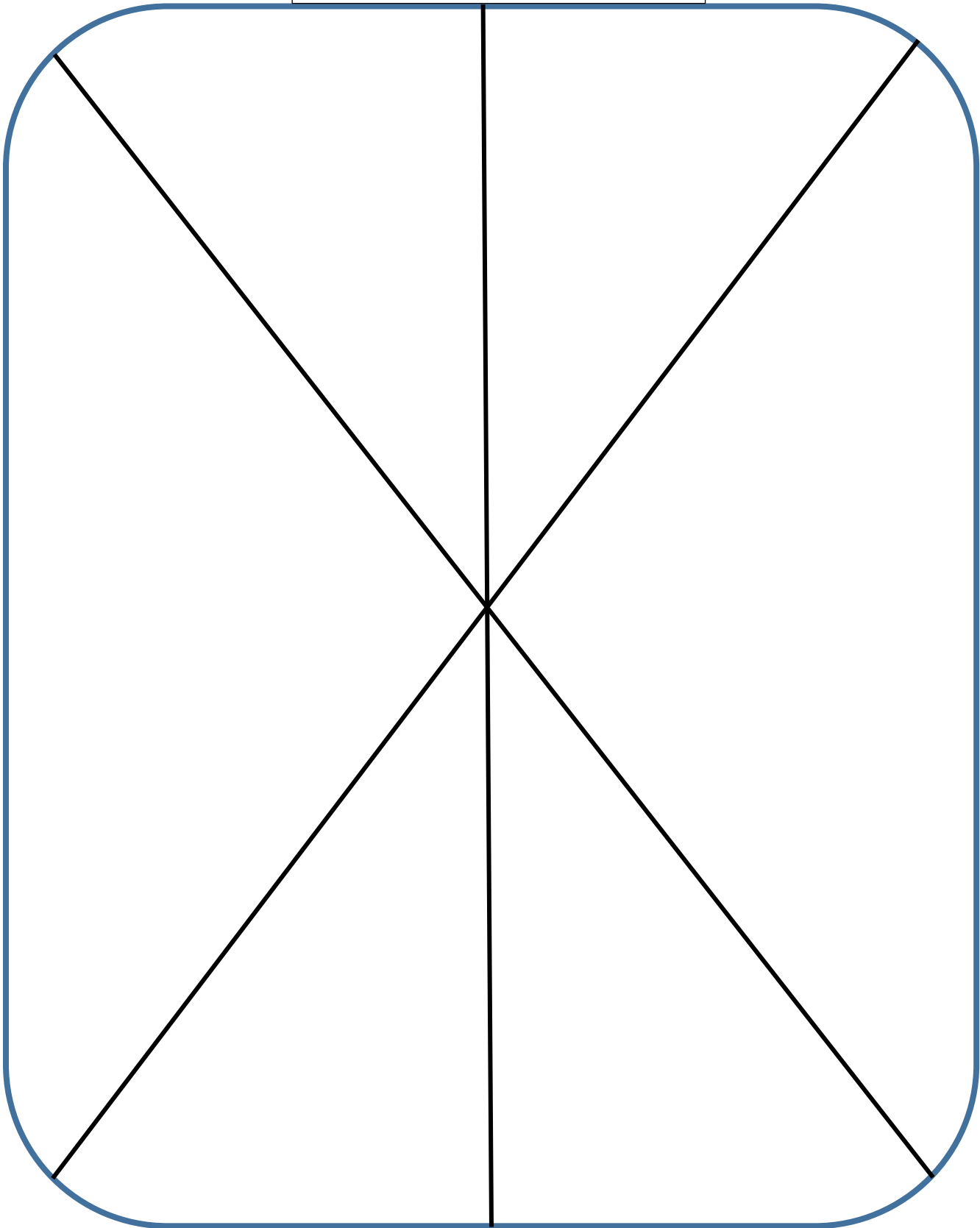
Extensions

- After classifying by 1 attribute, create sub-categories by choosing a second card.
- Add other physical properties to the possibilities on the playing cards. For example: weight, texture, flexibility, attraction to magnets and/or floats on water.

The Science behind the Activity

Scientists classify and sort objects, and phenomena, to help analyze commonalities, differences and to increase understanding. For example, zoologists and biologists classified animals by form and traits (e.g. hot or cold-blooded). Today, scientists use DNA analysis (specifically, mitochondrial DNA), and other methods, to create “trees of life” that illustrate interrelations among species. Object classification requires active decision-making and observation skills. As with other skills, these skills increase with practice. Providing multiple opportunities to sort and classify varieties of objects will help students become more comfortable with the process.

SORTING MAT



Sort objects by
shape

Sort objects by
color

Sort objects by
size

Sort objects by
texture
(what it feels like for example
soft, hard, bumpy, smooth)

Sort objects by
type of material
(for example, wood, paper,
plastic, metal, foam, fabric)

Sort objects by

Sort objects by

Sort objects by
