A SORTING CHALLENGE

ACTIVITY

OBSERVE OBJECTS, AND SORT THEM BY THEIR PROPERTIES.

TIME
25 minutes

MATERIALS
- ✓ 2–3 examples of each type of material (enough for each child to pick one):
  - rock (pebbles, stone figures)
  - wood (tree twigs, wooden toys, pencil)
  - textiles and fabric (yarn, clothing, wool)
  - plastic (rubber duck, plastic bag, plastic container, plastic toys, foam)
- ✓ 2 pieces of paper
- ✓ Tape or string
- ✓ Reference list of properties
- ✓ Blank paper for labeling properties in Step 7 (optional)
- ✓ Additional types of materials to investigate (glass and metal), 2–3 examples of each type (optional)

PREPARE AHEAD OF TIME
- ✓ Write "YES" on one piece of paper and "NO" on the other piece of paper.
- ✓ Use tape or string to mark off two areas for sorting. Place the YES paper in one area and the NO paper in the other area.

DOING SCIENCE
Children **observe**, describe, and **compare** the properties of objects. Children sort the objects into groups by properties. Then children describe why they made the groups the way that they did.

SCIENCE BIG IDEA
There are many different kinds of materials. The materials have different properties. For example materials can be such as hard, bendable, stretchy, or shiny. Materials can have different colors. We can use these properties to sort materials into different groups.

SCIENCE QUESTION
What are some ways that we can sort materials by their properties?

5 MIN: INTRO (whole group)
1. Place the materials on a table. Say, *We will use the same Superpowers of Science that scientists use. The question we will investigate is, What are some ways that we can sort materials by their properties?*
2. Show children one object and say, *This object has a lot of properties that I can observe.* Name two or three properties of the object, such as hard, soft, squishy, rough, bendable, or color (of the object).
3. Tell children that they will observe different objects and put them into different groups.

15 MIN: EXPLORE (pairs, whole group)
Check in with children while they explore. Listen for Science Big Ideas and Science Talk.

4. **Observe**
   - Have children choose one object and observe it with their senses.

- Have children find a partner and compare their objects.
- Each pair describes their objects to another pair, naming the properties.
- Bring the whole group back together. Have children call out properties without raising their hands (popcorn share). Write a list of the properties. If children need prompting, see the reference list of properties for some ideas.

5. **Compare and Sort**
   - The whole group selects one property from the list of properties.
   - Set out the YES and NO sorting areas. Have each child sort their object into the YES and NO sorting areas:
     a) YES if the object has that property
     b) NO if the object does not have that property
   - Prompt a short discussion of the selected property. Focus on why some objects are in the YES area (they have that property) and others are in the NO area (they do not have that property).
   - Have children take back their objects from the sorting areas, a few children at a time.
   - Repeat step 5 with a different property.
6. Have children return all materials.
7. **Optional: Sort Two Properties**
   - The whole group chooses ***two*** properties from the list. Label each sorting area with the name of one of the properties.
   - Have children pair up. Each pair chooses one material. The material must have *one* or *both* of the properties.
   - Have pairs place their materials in the sorting areas, by property.
   - Have a few pairs share why they sorted the objects the way they did. For example, if an object has both properties, which area did they choose to place it in?
   - If children suggest making a sorting area for objects that have both properties, you may create an additional sorting area. Have children sort again.

5 MIN: REFLECT (pairs, whole group)

8. Ask, *Why do you think it's important to sort objects by their properties?* Have children discuss with a partner.

WRAP UP

9. Say, *We observed and compared, just like scientists. We learned about some properties of materials.* Mention the properties that your group listed. Say, *When we know their properties, we know how objects are the same and different.*

SCIENCE TALK

Use these words when talking with children. Listen for children to use these ideas.

SUPERPOWERS OF SCIENCE	CHILD-FRIENDLY LANGUAGE
compare	compare • what's the same and what's different
explain	explain • figure out what happened • use evidence to explain
make sense of information	make sense of data • make sense of information • what does that tell you
observe	notice • observe
share what you know	share your ideas • share information • talk about what you found out

SCIENCE WORDS
color • flexible • hard • heavy • large • light • liquid • material • opaque • property • rough • shiny • size • small • smooth • soft • solid • sort • stiff • texture • transparent

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Reference List of Properties

The materials suggested for this activity have these properties.

Properties of Rocks • hard • rough or smooth • heavy • color • shiny or dull • not bendy • not stretchy	**Properties of Wood** • hard • rough or smooth • heavy or light • color • dull • not bendy • not stretchy
Properties of Plastic • hard or soft • rough or smooth • heavy or light • color • shiny or dull • may be bendy • may be stretchy	**Properties of Textiles and Fabric** • soft • smooth or textured (fuzzy, bumpy, scratchy, etc.) • color • shiny or dull • bendy • may be stretchy