FLUFFY
by
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What things are fluffy, soft, rough, hard, sharp, bumpy, smooth, etc.? Is it possible to make an object that is rough, smooth or an object that is sharp, soft? Fluffy wasn't successful but you might be. If you could change an object from sharp to soft, would it be possible for you to change it back again?

This story leads directly into an investigation of the properties of objects using your five senses or experiments demonstrating physical changes. It also opens the door for a discrepant event. Can you stick a needle through a balloon without popping it? The answer is yes and now Fluffy has a purpose in life.

MATERIALS: a balloon, bamboo skewer, vegetable oil, spaghetti, water, container, objects with different properties

ACTIVITIES:

- Examine dry spaghetti, spaghetti soaked in water, and spaghetti that has dried out. Do they all look and feel the same?
- Gather a bag of objects and allow students to divide them in groups based on their characteristic properties.
- Blow up a balloon, let a little air out, and tie off the end of the balloon. Dip the end of the skewer in vegetable oil and gently twist the tip of the skewer into the nipple end of the balloon. After it enters the balloon, push the skewer to the opposite side and out close to the tied end. Pull the skewer through and out of the balloon slowly. The balloon will not break! Why?

EXPLANATION: Balloons are made of a natural polymer called rubber. Examining the structure of polymers shows that they are made up of long chains which can stretch when the balloon is blown up. The needle

can push these polymer chains apart so that the balloon will not pop. When needle is slowly removed, feel the ends of the balloon to notice that air is leaking out.

SOURCE: CHEMISTRY IS FUN: Vol. 1, Mickey and Jerry Sarquis, Institute for Chemical Education (ICE), University of Wisconsin-Madison, Madison, WI 53706. http://ice.chem.wisc.edu/catalog.htm

TEACHER NOTES: The concept of characteristic properties should be introduced as early and as often as possible. I introduce this activity by having all my students stand in a circle. I study them carefully and start to divide them into two groups based on a certain property: hair color, length of hair, shirt with long sleeves vs. short sleeves, shirts with buttons vs. shirts without buttons, etc. Then I ask the students to guess the property I used. For young children, I try to pick something VERY obvious. Repeat this activity often; let your students be the leader, too.

Every child has a collection: rocks, trading cards, stuffed animals, miniature figures, etc. I ask the students to bring their collections to school; the collection must be small enough to fit into a brown paper grocery bag AND they must have parental permission to bring the collection to school. All collections are valuable! For the activity, tell your students to pick one property/attribute that could be applied to their collection so that it could be divided into JUST TWO GROUPS: size, color, shape, texture, etc. They should then divide their collection into these two groups based on the property. Then all students should go around the room and try to determine what property the other students chose.

STANDARDS:
BSL: 1.2, 1.3, 1.5, 1.7, 1.11, 2.2, 5.1, 5.2, 5.4, 6.2, 6.3, 8.1, 11.1, 11.4, 12.3
NCTM: 4d, 9b
SCS: A1, B1, B2, D1, H2, H3

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