

States of Matter Lesson

Grade 1

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Benchmark:

SLC 11: Students will recognize that all matter occurs in the states of solids, liquids and gases and identify substances that can change.

Objective:

Students will be able to identify different substance as a solid, liquid, or gas. They should be able to list different properties of solids, liquids, and gases.

Materials:

- 5 groups of 15 different objects (objects within a group are different, but every group must have the same objects) that are representative of solids, liquids, and gases. For example: beach balls balloons, blocks, pencils, jar of water, nail polish, etc.
- 18 blank or solid colored posters.
- Note cards with drawings of all of the objects.

Day 1

Procedure:

Organize the class into five groups of five or more students. Give each group the 15 different objects and 3 posters. Tell the students that they need to group these objects into 3 different families, or categories. All of the objects in each category are to be placed on one of the posters. They can choose whatever characteristics they like to sort the objects. Have each group share how they grouped their objects. Point out to the students that some groups have objects that could be in more than one category, (like the beach ball).

Target Observations:

- The objects can be grouped by size, color, or texture
- Some objects cannot be place in only one group or the other

Target Model:

-Objects sorted by size, color, texture, etc... often can be placed in many different categories.

Procedure:

What is a way to sort these that everyone will agree on, and won't have objects that can be in more than one category? Let's look at two objects, the brick and the beach ball. Most of the beach ball is taken up by the stuff inside of it – what is inside of the

beach ball? How is this different than the brick? Similarly, much of the glass of water is what is inside the glass – what is different about water, the inside of the beach ball, and the brick? Let's sort the rest of the objects according to this method. Are there any objects that can be placed in two categories?

Target Observations:

- The beach ball is filled with air, a gas
- The brick is hard and is a solid
- The glass is filled with water, a liquid
- We can sort the objects by solid, liquid, and gas.

Target Model:

-Objects sorted by size, color, texture, etc... often can be placed in many different categories.

-Objects sorted by solid, liquid, and gas usually can be placed only in one category.

Discussion:

What are some characteristics of solids (soft, hard, change shape)? Liquids? Gases? Can solids change their volume, the amount of space they take up? Liquids? Gases? How?

Target Observations:

- Solids typically are hard, don't change their shape very easily, and don't change their volume.
- Liquids typically are soft, change their shape easily, but don't change their volume.
- Gases typically are soft (though a filled balloon may feel hard), change their shape easily, and can change their volume (cool down a balloon and it shrinks).

Target Model:

-Objects sorted by size, color, texture, etc... often can be placed in many different categories.

-Objects sorted by solid, liquid, and gas usually can be placed only in one category.

-Solids don't change their shape or volume.

-Liquids change their shape but not their volume.

-Gases change their shape and their volume.

Review:

Tape three posters on the board and label them as solids, liquids, and gases. Show the class each of the note cards and let them tell you which poster they belong to. Tape the note cards to the correct poster.