

Goopy Globbs and Weird Reactions Lesson Plan

Objectives

The scientists will:

- Learn the definition of matter and states of matter.
- Observe how matter changes from one state to another.
- Learn the difference between a physical and a chemical change.
- Experiment with matter to produce different physical and chemical changes and apply this knowledge to what they have learned.
- Experiment with producing different forms of matter and apply this knowledge to what they have learned.

Materials

- Baby food jars
- Milk
- Food coloring – red, blue, and green
- Aluminum pie plates
- Liquid dishwashing detergent
- Vinegar
- Eyedroppers (each child)
- Epsom salts
- Elmer's white school glue (4 oz bottles)
- 2-quart bowls
- Measuring cups
- 1 pint water
- Borax
- Measuring spoons
- Stirring spoons
- Small containers to hold dishwashing detergent
- Variety of solid and liquids

Procedures

- 1) Place a variety of solid and liquid matter on a table in the front of the room where all participants can see the objects.
- 2) Start a dialogue about matter and its different forms.
- 3) Ask students to touch and look at the objects on the table. What objects can they see? What objects can they hold in their hands? Is there anything they cannot see?
- 4) Blow up a balloon. Ask the participants what they observe as the balloon deflates. Introduce the concept of gas as a form of matter. Explain that air (gas) is invisible.
- 5) Discuss how matter changes states. Rub the ice cube between your hands over the bowl and start a dialogue about what happens to the ice cube as you rub it between your hands.
- 6) Follow the procedures for "Sour Milk" found at http://media.nasaexplores.com/lessons/01-03/k-4_1.pdf to demonstrate how milk is separated into its solid and liquid parts. Discuss why this reaction occurred when the vinegar was added to the jar.
- 7) Follow the procedures for "Making Soft Water." Discuss results.

- 8) Proceed to “Colorful Milk” experiment to demonstrate how molecules move.
- 9) Follow procedures for “Slime and Polymers” found at <http://www.fatlion.com.science/slime.html>. Discuss the chemical reaction of Borax and glue. Ask participants to experiment with “pulling” the glob apart noting how it acts like a solid rather than a liquid. Note: The slime experiment is located in many science experiment books and on a variety of websites. We like to add food coloring to the slime – usually green to make it more interesting for the participants.

Conclusion

Matter is everywhere. Matter is made of molecules and either a solid, liquid or gas. Matter can change states and there is a difference between the physical state of matter and the chemical state of matter.

Additional websites:

<http://www.fatlion.com/science/slime.html>

<http://www.reachoutmichigan.org/funexperiments/agessubject/lessons/polymer.html>