Physical Properties of a Substance

(aka-The Flubber Lab)

Unit 1

Standards 1 and 3

Purpose: Compare the physical properties of two different types of flubber.

Background Questions:

1) In your own words define the term **physical property**. List 3 examples of physical properties.

2) In your own words describe how a physical change is different from a chemical change.

In the movie *Flubber*, the professor describes the flubber by saying, “You’re highly viscous. But yet you can phase shift. You’re moldable...You’re foldable. You’re gullible...ooh, You’re ductile. Oh! You’re elastic.”

3) What is viscosity (use a dictionary)? Give an example of a substance, other than flubber, that is highly viscous and an example of a substance that is not very viscous.

4) What is a phase shift (or phase change)? Give 2 examples of phase shifts.

5) In your own words (25-30) rewrite the description of the flubber.

6) Look at the directions for Flubber #1 and Flubber #2. Which recipe do you think will produce the best flubber? Explain your answer.

Hazards/Special Instructions: Copy from Board

Procedure and Data:

Flubber #1:

1) Add 1 tablespoon of water to plastic bag.

2) Measure 1 tablespoon of white glue and 2 tablespoons of borax. Add these to the water in the plastic bag.

3) Seal the bag and mix by kneading the plastic ball. Try to roll the flubber into a ball.

4) If you have excess liquid in your bag pour it into the designated waste container.

5) Put your name on the bag and label it flubber #1. Store your flubber in the designated area until tomorrow.

Flubber #2:

1) Add 1 tablespoon of water to plastic bag.
2) Measure 2 tablespoons of corn starch and add to the water in the plastic bag.
3) Seal the plastic bag and mix the corn starch and water. Try shaking and kneading the plastic bag.
4) Put your name on the bag and label it flubber #2. Store your flubber in the designated area until tomorrow.

Data:
1) Look at the substances in your bags and make some observations about them. What do you see?
2) Open the top of each bag and touch the substances. What do they feel like? Does either one feel like anything that you have touched before?
3) Fill in the data table. For full credit be sure your observations are very thorough.

<table>
<thead>
<tr>
<th>Detailed Observations</th>
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<tbody>
<tr>
<td>Flubber #1</td>
<td></td>
</tr>
<tr>
<td>Flubber #2</td>
<td></td>
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Analysis/Calculations:
1) Of the following terms: viscous, phase shift, moldable, foldable, ductile, and elastic, which ones can you use to describe Flubber #1? Explain your answer.
2) Of the following terms: viscous, phase shift, moldable, foldable, ductile, and elastic, which ones can you use to describe Flubber #2? Explain your answer.
3) How are the physical properties of Flubber #1 and #2 alike? How are they different?

Questions for Discussion:
1) Describe 4-5 uses for flubber. (You can be creative.)

Your conclusion should be written as one paragraph. Restate the purpose of the lab and then explain, USING DATA, how you did or did not meet the purpose. What does your data tell you? Also comment on any of your data that does not make sense. This is the last part of the write-up but it is the most important. Study your data! Analyze it! Think about it!!