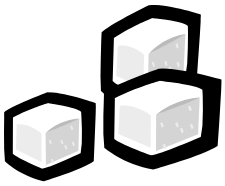
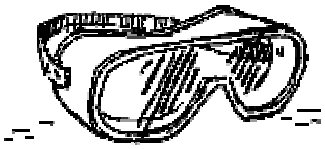
Name_____

Changing Sugar





Goggles must be worn during this investigation.

Problem: To observe physical and chemical changes

Background Information: **Chemical properties** are properties of an element or compound in chemical reactions. Chemical properties are determined by the reaction of a substance with other substances. For example, the fact that paper can burn is a chemical property. **Physical properties** are properties of an element or compound that can be observed without a chemical reaction of the matter. A substance's color and density are physical properties.

In a **physical change**, the matter is not changed chemically, just changed to another phase (i.e. gas, liquid, solid) or separated or combined.

In a **chemical change**, the matter is changed chemically and shows different physical and chemical properties after the change.

Materials:

Sugar cube	Candle	Hand lens
Foil	Test tube clamp	

Procedure:

1. Observe and record 5 physical properties of the sugar cube.
2. Crush the sugar cube.
3. Observe and record 5 different properties of the crushed sugar.
4. Make a boat out of your foil.
5. Put the crushed sugar in the foil boat and hold it over the candle flame with the test tube clamp.
6. Record 5 observations of the sugar as it is being heated.
7. After the sugar has melted, let it cool.
8. Observe and record 5 properties of the matter left in the foil boat.

Data:

Observation Number	Sugar Cube	Crushed Sugar	Sugar While Being Heated	Sugar After Cooling
1				
2				
3				
4				
5				

Questions:

1. Sugar is a compound made of the elements hydrogen, carbon and oxygen. Which element is left on the spoon after the sugar is heated?

2. Explain why crushing a sugar cube is an example of a physical change.

3. Explain why melting the sugar cube is an example of a chemical change. What new matter was formed?

4. How is melting a sugar cube different from melting an ice cube?