
Detective: _____

Date: _____ HR: _____

LAB: Powder Analysis

Group # _____

WHAT IS THAT WHITE POWDER?

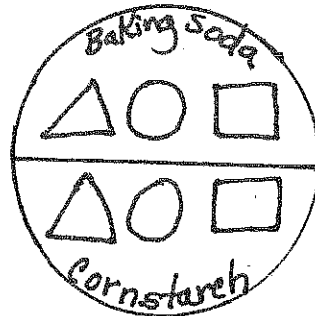
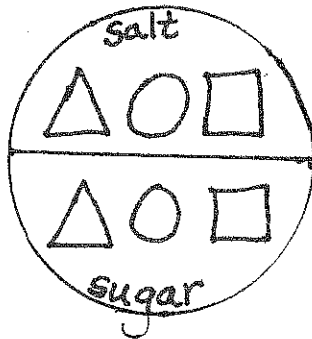
A forensic scientist may discover powder at a crime scene. In order to determine if it is illegal or not the crime lab will identify the substance using chemistry. Take on the role of a forensic chemist to identify unknown substances.

Materials:

pencil, scoopula, eyedropper, magnifying glass, water, white chalk, baking soda, sugar, salt, cornstarch, iodine solution, vinegar, paper towel, paper plate, 4 small bowls

Procedure:

1. Divide your paper plate into 2 areas, as if the plate was a pie. (see below)
2. Label each area: baking soda, sugar, salt, and cornstarch.



TESTING Key:

$\Delta \rightarrow H_2O$

$\circ \rightarrow \text{vinegar}$

$\square \rightarrow \text{iodine}$

3. Place one scoopula of each powder on a separate section of the paper plate.
4. Study the powders with the magnifying glass. Examine what each powder looks like. How would you describe the powder's shape. Does it have large or small grains? Your observations should be written in the Appearance column of your chart.
5. Examine the powders further by rubbing each powder between your fingers. Describe how each powder feels in the Texture column of the chart.
6. Determine if there is a smell to any of the powders. Record your findings in the Smell column of the chart.
7. Take the eyedropper and place a drop of water on each individual powder. Examine what happens? Do the powders dissolve? Is there a reaction? Write your observations in the Reaction to Water column.
8. Place 2 drops of iodine to each of the white powders using the eyedropper. Record what happens in the Reaction to Iodine column. Iodine should be handled with care.
9. Place 4 drops of vinegar on each of the white powders. Record what happens in the Reaction to Vinegar column.

Comparing test results of substances that are **known** help Forensic Scientists identify **unknown** substances. After analyzing and recording results of each substance have your partner leave the area. Select and place one of the powders on construction paper and do not tell which substance it is. Invite your partner back to see if she/he can determine the powder by performing the same experiments and observations previously done. Change places so your partner can select one of the powders for you to identify. Can you correctly identify the mystery powder?

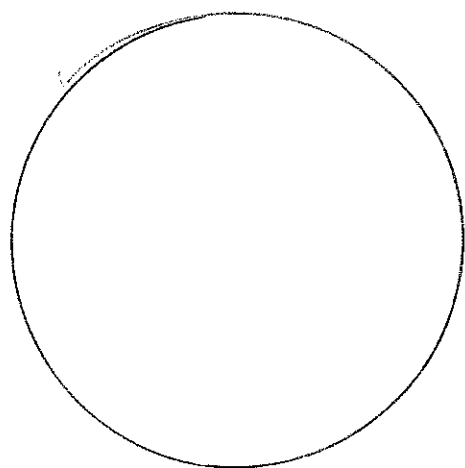
OVER →

Powder Analysis

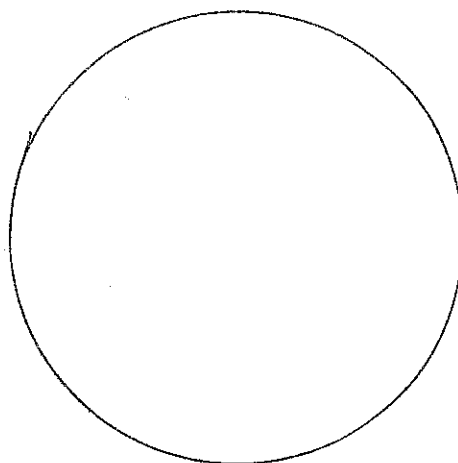
Substance	Appearance	Texture	Smell	Reaction to Water	Reaction to Iodine	Reaction to Vinegar
Baking Soda						
Sugar						
Salt						
Cornstarch						

Stereoscope
(or magnifying glass)

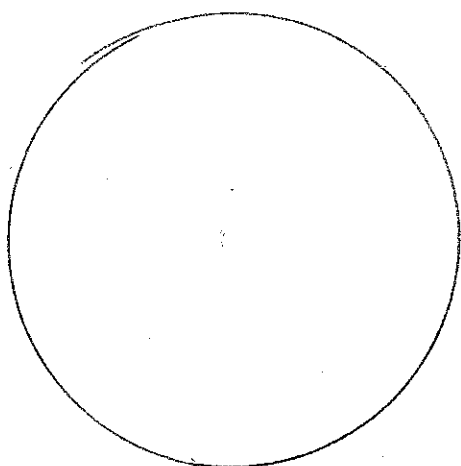
Sketches



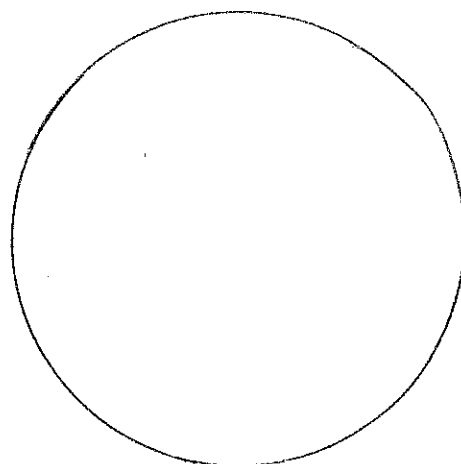
Sugar



Salt



Cornstarch



Baking Soda