**Mystery Powder lab – Science 9**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_\_\_\_\_\_

**Introduction:** We have spent some time studying physical and chemical properties and physical and chemical changes. To finish off the unit, we will be doing an investigation. Each person will complete this lab and hand it in. The due date for your class is\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Purpose:**

1. To investigate the physical and chemical properties of several white powders
2. To identify an unknown powder based on comparison with test results.

**Materials:**

Baking soda plastic spot plate

Borax scoopula for each powder

Salt water bottle

Cream of tartar iodine solution

Flour phenolphthalein (or other indicator)

Icing sugar magnifying glass

Dilute acid safety glasses

Unknown powder \_\_\_\_\_\_\_\_\_\_ 7 small test tubes

Stir rod

**Procedure** – perform the same tests on each powder. Record your results in your data table. It may be helpful to take pictures as you perform each step to help when you write your report. Note that taking pictures is NOT a substitute for recording results in the data table.

1. *Observing crystals* – scoop a small amount of powder into one well of the spot plate. Observe the powder with the magnifying glass. Draw and describe what you see.
2. *Reaction with acid* – scoop a small amount of powder into one well of the spot plate. Using the dropper bottle, place a few drops of acid onto the powder. Wait a moment to see if there are any bubbles. Record what you see.
3. *Iodine test* – scoop a small amount of powder into one well of the spot plate. Add a few drops of iodine. Record your observations.
4. *Phenolphthalein* – scoop a small amount of powder into one well of the spot plate. Add a few drops of water and then a few drops of phenolphthalein (or other indicator). Record your observations.
5. *Solubility* – scoop a small amount of powder into one of the small test tubes. Add some water (fill the test tube approximately ¼) and stir. Note if the powder dissolves completely, partially, or not at all. If it dissolves completely, add another scoop of powder and keep adding until no more will dissolve. Record how much dissolves. Be sure to use roughly the same amount of water when testing other powders so you can compare.
6. Repeat steps 1-5 with the other known powders.
7. Now repeat your tests with your unknown. Be sure to record the letter of your unknown and note that it may contain one OR TWO of the powders tested.
8. When you have completed your observations, take you data table to the teacher to be stamped. If there is time you may now take your computer out and begin work on your report.

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| --- | --- | --- | --- | --- | --- |
|  | **Crystal size/shape** | **Reaction with acid** | **Iodine test** | **Phenolphthalein** | **Solubility** |
| **Baking soda** |  |  |  |  |  |
| **Borax** |  |  |  |  |  |
| **Salt** |  |  |  |  |  |
| **Cream of tartar** |  |  |  |  |  |
| **Icing sugar** |  |  |  |  |  |
| **unknown** |  |  |  |  |  |

**Pre-lab:** Find the pre-lab questions on the google classroom site. Answer them BEFORE you come to class to do the lab

**Report:** Reports for this lab will be submitted electronically (on Google classroom). Please refer to the google classroom site for details on the format and requirements for the lab report.