Name Class Date

**Classifying Matter Lab**

**Introduction**

In chemistry, as in all the sciences, it is very important to be able to classify substances. One way substances are classified is as an element, a compound, or a mixture. In this experiment you will learn to identify substances as elements, compounds, or mixtures by observing their physical properties.

**Objective 6**

Differentiate between elements, compounds, solutions (homogeneous mixture), and heterogeneous mixtures.

**Materials**

Samples as given by the teacher.

**Procedure**

Follow the teacher’s instructions about rotating from station to station. In the data table, record the name, symbol or formula (if applicable), color, physical state, and classification of each substance. Be sure to record each substance by the appropriate number on the data table.

**Data Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of Substance** | **Symbol or Formula** | **Color** | **Check One** | **Check One** |
| **Solid** | **Liquid** | **Gas** | **Element** | **Compound** | **Solution** | **Hetero. Mixture** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

**Conclusions**

1. What do all of the elements have in common? Why are they defined as “elements?”

1. What do all of the compounds have in common? Why are they defined as “compounds?”

1. What do all of the mixtures have in common? Include both solutions and heterogeneous mixtures.

1. How can solutions and heterogeneous mixtures be differentiated? Refer to examples from the lab.

1. In this lab you made macroscopic observations (large-scale). The pictures below represent the particles in a sample of matter (atomic-scale). Identify each picture as an element, compound, solution, or heterogeneous mixture. Briefly describe how you determined each classification.



 A B C D E

A:

B:

C:

D:

E: