Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Lab: Identifying Elements, Compounds, and Mixtures**

**Directions**:

1. Read through the review chart below and answer the pre-lab questions.
2. Obtain one substance at a time and identifying each substance as an element, compound, or mixture. If it is a mixture, be sure to include whether it is **homogeneous** or **heterogeneous**.
3. Do 8 out of the ten samples from the back counter and then the 2 unknown liquids on your table.
4. For the unknown liquids, you must determine if the liquid is water or if it is a solution (mixture). See notes on solutions.
5. Be sure to include 3 observations of the substance, and a meaningful REASON for your classification!

|  |  |  |
| --- | --- | --- |
| **Element** | **Compound** | **Mixture** |
| * Made of ONE kind of atom (found on the periodic table)
* Cannot be separated into any simpler form chemically or physically
 | * Made of 2 or more kinds of atoms chemically combined in a certain ratio (e.g. a water molecule is 2 hydrogen atoms and one oxygen atom)
 | * 2 or more elements or compounds mixed together physically.
* Not chemically combined!
* Each part keeps its own chemical identity.
* Can be **heterogeneous** (different throughout) or **homogeneous.** (the same throughout)
* Liquids that are homogeneous solutions are called **solutions.**
 |

**Pre-Lab Questions**

1. What is the difference between an atom and a compound?
2. How is a heterogeneous mixture different from a homogeneous mixture?
3. How is the way a mixture is combined DIFFERENT from how a compound is combined?
4. What is easier to separate, a mixture or a compound? Why?
5. Which can be found on the periodic table: elements, compounds or mixtures?

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance #** | **Description/Observations** | **Classification****(Element, Compound, Homogeneous Mixture or Heterogeneous Mixture)** | **How do you know?** |
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**Teacher Notes:**

Challenging for kids

Goal: to classify matter

Substances used:

|  |  |
| --- | --- |
| Oil + water | Heterogeneous |
| Copper | Element |
| Chalk (CaCO3) | Compound |
| Rocks and sand | Heterogeneous |
| H2O2 | Compound |
| Gatorade (Colored water) | homogeneous |
| Sucrose | Compound |
| Iron | element |
| Brass | homogeneous |

Unknowns:

Salt water (or baking soda water) and **distilled** water.

Salt water seemed to work best. Make and then pour solution through filter paper to make clear.

Set-up

Back counter: 3 samples of each substance #1-9

Each table: 2 large beakers and 2 small beakers with unknowns (odd-salt and even-water)

Around room (5 worked well): hot plate and hot pad

Have half the groups start with the unknowns

**Day 2:**

1. Get in your groups and white board your groups

|  |  |  |  |
| --- | --- | --- | --- |
| Elements | Compounds | Hetero mixture | Homo mixture |
|  |  |  |  |

1. Present boards

Look for similarities and differences

Does everyone agree on the classifications?

What is different?