

Mixture Separation Lab:

Name \_\_\_\_\_

Hour \_\_\_\_\_

**Background:**

The ability to separate and recover pure substances from mixtures is extremely important in scientific research and industry. Chemists need to work with pure substances, but naturally occurring materials are seldom pure. Often, differences in the physical properties of the components in a mixture provide the means for separating them. In this experiment, you will have an opportunity to design, develop, and implement your own procedure for separating a mixture. The mixture you will work with contains salt, sand, iron fillings, and poppy seeds. All four substances are in dry, granular form.

**Objectives:**

- Observe the chemical and physical properties of a mixture.
- Relate knowledge of chemical and physical properties to the task of purifying the mixture.
- Analyze the success of methods of purifying the mixture.

**Preparation:**

1. Your task will be to plan and carry out the separation of a mixture. Before you can plan your experiment, you will need to investigate the properties of each component in the mixture. The properties will be used to design your mixture separation. Record your observations in the data table provided.

**Data Table:**

Properties	Sand	Iron Fillings	Salt	Poppy Seeds
Dissolves				
Floats				
Magnetic				
Other				

**Procedure:**

1. Obtain separate samples of each of the four mixture components from your teacher. Use the equipment you have available to make observations of the components and determine their properties. You need to run several tests with each substance, so don't use your entire sample on the first test.

2. Make a plan for what you will do to separate the mixture containing the four components. Make sure to list all of the steps of your plan.

**Plan:**

3. Obtain a sample of the mixture of the mixture from your teacher from your teacher. Using the equipment you have available, run the procedure you have developed.

**Clean up and Disposal:**

4. Clean your lab station. Clean all equipment, and return it to its proper place. Dispose of chemicals and solutions in the containers designated by your teacher. Do not pour any chemicals down the drain or throw anything in the trash unless your teacher directs you to do so. Wash your hands thoroughly after all work is finished and before you leave the lab.

**Analysis and Interpretation:**

1. Evaluating Methods: How did you decide on the order of your procedural steps? Would any order have worked?
2. Designing Experiments: If you could do the lab over again, what would you do differently? Be specific.

