

DATA TABLE

Properties	Sand	Iron filings	Salt	Poppy seeds
Dissolves				
Floats				
Magnetic				
Other				

on the first test. Look for things like whether the substance is magnetic, whether it dissolves, or whether it floats. Record your observations in your data table.

2. Make a plan for what you will do to separate a mixture that includes the four components from step 1. Review your plan with your teacher.
3. Obtain a sample of the mixture from your teacher. Using the equipment you have available, run the procedure you have developed.

CLEANUP 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:** On a scale of 1 to 10, how successful were you in separating and recovering each of the four components: sand, salt, iron filings, and poppy seeds? Consider 1 to be the best and 10 to be the worst. Justify your ratings based on your observations.

CONCLUSIONS

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.

3. **Designing Experiments:** Name two materials or tools that weren't available that might have made your separation easier.

4. **Applying Ideas:** For each of the four components, describe a specific physical property that enabled you to separate the component from the rest of the mixture.

EXTENSIONS

1. **Evaluating Methods:** What methods could be used to determine the purity of each of your recovered components?

2. **Designing Experiments:** How could you separate each of the following two-part mixtures?
 - a. aluminum filings and iron filings
 - b. sand and gravel
 - c. sand and finely ground polystyrene foam
 - d. salt and sugar
 - e. alcohol and water
 - f. nitrogen and oxygen

3. **Designing Experiments:** One of the components of the mixture in this experiment is in a different physical state at the completion of this experiment than it was at the start. Which one? How would you convert that component back to its original state?