

Inquiry Question

How can I separate out the components of a mechanical mixture?

Name: _____ **Date:** _____



Mechanical mixtures are heterogeneous mixtures that have two or more particle types that are not mixed evenly and can be seen as different kinds of matter in the mixture. These are the mixtures where you can clearly see that there is more than one substance present.

Most pure substances were originally part of a mixture in nature. In most cases, a mixture was separated in order to obtain the pure substances that we need. Separating substances from mixtures is an important part of chemistry and our modern industry.

There are many different processes used for separation, including: filtration, centrifuge, and distillation to name a few. In this project you will use separation techniques to isolate the components of a mystery mechanical mixture.

General Instructions

The goal of this project is to understand how separation techniques can be used to isolate the components of mechanical mixtures.

Materials you'll need:

- coffee filters
- magnet covered in paper
- stove top WITH HOME FACILITATOR or TEACHER SUPERVISION
- water
- Mason jar containing the following mixture:
 - salt
 - sand
 - marbles
 - paper clips
 - styrofoam
 - iron filings

Ideas and Hints:

1. The goal is to separate each item from the mixture based on different properties.
2. Identify each substance in the mixture.
3. Identify a property that can be used to separate each substance.
4. Identify a process to isolate each substance.
5. Develop a procedure and share it with your teacher.
6. Implement your procedure.
7. Write up s summary of your processes and what you isolated in each step. A table like the one below will help with the summary.

Component	Property	Separation Method
salt		
sand		
styrofoam		
marbles		
paper clips		
iron filings		

Project submission:

Take photos of your steps in the separation and share these with you teacher along with a written summary.