Lesson: Separating Mixture	Name:
Teacher:	Date:

Separating a Mixture Using Sieving and Magnetism Experiment Guide

NGSS Alignment:

- 5-PS1-3 – Make observations and measurements to identify materials based on their properties.
- 5-PS1-4 – Conduct an investigation to determine whether mixing substances results in new substances.

Florida State Standard:

- SC.5.P.8.3 – Investigate and describe how materials can be separated based on physical properties.
- SC.5.P.8.4 – Identify the properties of materials and determine methods of separation based on those properties.

Objective:

Students will learn how to separate a mixture of iron filings, sand, and small stones using the physical properties of magnetism and particle size through sieving.

Materials:

- 1 cup of iron filings
- 1 cup of sand
- 1 cup of small stones
- Sieve or colander
- Magnet
- Plate or shallow dish
- Bowl or container

Safety Precautions:

- Handle magnets carefully to avoid pinched fingers.
- Keep magnets far from electronic devices.

- Maintain a clean workspace and clean spills immediately.
- Supervise students at all times to ensure safe handling of materials.

Scientific Inquiry Questions:

Before the Experiment (Prediction):

1. Which material do you predict the magnet will remove? Why?

   _____

2. Which material do you think will stay in the sieve? Why?

   _____

During the Experiment (Observation):

1. What do you notice when the magnet is placed near the mixture?

   _____

2. What do you observe when the mixture is shaken through the sieve?

   _____

After the Experiment (Analysis):

1. How do the physical properties of each material help in the separation process?

   _____

2. Why is it important to understand physical properties when separating mixtures?

   _____

Procedures:

1. Prepare the Mixture

Combine 1 cup of iron filings, 1 cup of sand, and 1 cup of small stones in a bowl. Mix thoroughly.

2. Use Magnet to Remove Iron Filings

Move the magnet slowly across the mixture. The iron filings will be attracted and separate from the sand and stones. Place the collected iron filings on a plate.

3. Sieve the Remaining Mixture

Pour the remaining sand-and-stone mixture into the sieve. Shake gently.

- Sand will fall through.
- Small stones will remain in the sieve.

4. Collect the Separated Components

- Place the sand in a bowl.
- Place the stones in another container.
- Set the iron filings aside for comparison.

Student Data Table

Material	Physical Property Used for Separation	Method Used (Magnetism or Sieving)	What Happened During Separation?
Iron Filings			
Sand			
Small Stones			

Clean-Up Notes:

- Gently wipe the magnet to remove leftover filings.
- Sweep or wipe away any remaining sand or stones.
- Wash all tools used (sieve, bowls, etc.).
- Return materials to the proper storage area.