Lesson: Separating Mixture	Name:
Teacher:	Date:

Separating a Mixture Using Sieving and Magnetism – Lesson Plan

www.innovatewithmrbarbado.com
https://www.youtube.com/@STEMClub-z7l

Florida State Standard: SC.5.P.8.3 – Investigate and describe how materials can be separated based on physical properties.
Florida State Benchmark: SC.5.P.8.4 – Identify the properties of materials and determine methods of separation based on those properties.
NGSS Alignment:

- 5-PS1-3: Make observations and measurements to identify materials based on their properties.
- MS-PS1-2: Analyze and interpret data on the properties of substances before and after interactions.

LESSON FOCUS:

Mixture Separation Techniques (Magnetism & Sieving)

MATERIALS:

- Mixture of iron filings, sand, and small stones (1 cup each)
- Sieve or colander
- Magnet
- Plate or shallow dish
- Bowl or container

LESSON OBJECTIVES:

By the end of this lesson, students will be able to:
• Explain how mixtures can be separated based on physical properties.
• Use magnetism to separate iron filings from a mixture.

- Use sieving to separate sand from stones based on particle size.
- Identify which physical property made each separation method effective.

PROCEDURES

1. Introduction (10 minutes)

- Introduce mixtures and ask students for examples (trail mix, sand + shells, etc.).
- Explain that today they will separate a mixture using **two different techniques**: magnetism and sieving.
- Review key vocabulary: mixture, magnetism, particle size, physical property, sieve.

2. Experiment (30 minutes)

Step 1: Combine 1 cup each of iron filings, sand, and small stones in a bowl.
Step 2: Move a magnet through the mixture to collect the iron filings. Place iron filings on a plate.
Step 3: Pour the remaining mixture into a sieve.
Step 4: Shake gently. Sand falls through; stones stay in the sieve.
Step 5: Place sand and stones into separate containers.

3. Observation (10 minutes)

Discuss:
- Which material moved with the magnet? Why?
- What allowed sand to pass through the sieve?
- Which physical property allowed each separation method to work?

4. Generalization (5 minutes)

- Magnetism separates materials that are *magnetic*.
- Sieving separates materials by *particle size*.
- These methods are used in real life: mining, construction, recycling, cooking, soil testing.

5. Assessment (5 minutes)

Students answer:
- Why did the magnet attract only one part of the mixture?
- Why did the sand fall through the sieve?
- How do scientists use separation techniques in real-life situations?

Note 1 – Safety

- Keep magnets away from electronics.
- Make sure students avoid pinching their fingers.

- Clean spills immediately.
- Supervise students at all times.

Note 2 – Accommodations (ELL, ESE)

- Use visual diagrams of the separation steps.
- Pair ELL students with a supportive peer.
- Provide sentence frames for observations.
- Offer simplified instructions or hands-on assistance for ESE students.