

Content Area: Science

Standard: 1. Physical Science

Prepared Graduates:

- Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions

Grade Level Expectation: Fifth Grade

Concepts and skills students master:

1. Mixtures of matter can be separated regardless of how they were created; all weight and mass of the mixture are the same as the sum of weight and mass of its parts

Evidence Outcomes

Students can:

- a. Develop, communicate, and justify a procedure to separate simple mixtures based on physical properties (DOK 1-3)
- b. Share evidence-based conclusions and an understanding of the impact on the weight/mass of a liquid or gas mixture before and after it is separated into parts (DOK 1-3)

21st Century Skills and Readiness Competencies

Inquiry Questions:

1. How do mixtures act similarly and differently from their original materials?
2. What are some ways that mixtures can be separated?

Relevance and Application:

1. Knowing properties helps determine how to separate mixtures.
2. Mixtures make up Earth's layers. For example, rocks are mixtures of minerals, and minerals are mixtures of elements and compounds.

Nature of Science:

1. Ask testable questions about mixtures, make a falsifiable hypothesis, design an inquiry based method of finding the answer, collect data, and form a conclusion. (DOK 2-4)
2. Select appropriate tools to conduct an experiment, use them correctly, and report the data in proper units. (DOK 1-2)
3. Share results of experiments with others and respectfully discuss results that are not expected. (DOK 2-3)
4. Review and analyze information presented by peers and provide feedback on their evidence and scientific reasoning about the separation of mixtures and how the separation impacts its total weight/mass. (DOK 2-3)