Alien Invasion?

Cross-Disciplinary Extensions

Connect to Math
- Have students weigh the object in the refrigerated compartment (the frozen balloon) at the beginning of the investigation and again at the end after it has melted partially or completely. Has the weight changed? Why or why not?
- Have students weigh the mixture components before and after mixing. Does the combined weight change? Why or why not?
- Have students convert weights or masses into other units of measurement (e.g., ounces into pounds; grams into kilograms).

Connect to Writing
- Have students write a short science fiction story that involves physical and chemical changes.
- Have students think about what should be done with the “alien capsule.” Should it be put in a museum? Sent out into space? Put in a secure place? Students should write a persuasive letter to Homeland Security giving their opinion, supported by reasoned arguments.

Connect to Social Studies
- Have students find out what the Department of Homeland Security is and what do they do. Would they really investigate an “alien capsule”?

Next Generation Science Standards
This lesson supports the following:

Practices of Science and Engineering
- Planning and carrying out investigations
- Analyzing and interpreting data
- Constructing explanations
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Crosscutting Concepts
- Cause and Effect: Mechanism and Explanation
- Stability and Change

Disciplinary Core Ideas, Grades 3-5

Physical science
- Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in
space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1)

- Measurements of a variety of properties can be used to identify materials. (5-PS1-3)
- When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4)
- The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)