

# Stackable Instructionally- embedded Portable Science (SIPS) Assessments

**Grade 5 Unit 1  
Matter and Its Interactions**

**Storyline Overview**

**May 2023**



# Grade 5 Unit 1: Storyline, Phenomena, and Segments

## Storyline Overview

Students make sense of the key disciplinary ideas of matter and its properties, physical and chemical changes, and that the properties of matter can be investigated and used to describe substances, including the conservation of mass during changes.

## Anchor Phenomenon

The anchor phenomenon uses a scenario involving baking soda bread, or other yeast-less bread that is relevant to the local population. It is essential that it uses a chemical leavening agent, such as baking soda, to support making the chemical connections later in the unit.



Image Source: [Bread Irish Soda Loaf - Free photo on Pixabay - Pixabay](#)

Students compare the bread to one baked without the baking soda and try to explain what happened through investigations carried out over the course of the unit.

## Measurement Target

Students are able to apply Science and Engineering Practices with emphasis on developing and using models and planning and carrying out investigations including evaluating evidence using mathematics and computational thinking related to the scale of the structure and properties of matter, including whether or not matter is conserved, and to identify materials and mixtures based upon their properties or results of a reaction before and after mixing.

## Relationship to Prior and Subsequent Learning

Unit 1 focuses on physical changes in matter. Unit 2 focuses on matter and energy flows in ecosystems. By building familiarity with ideas related to the conservation and particulate nature of matter early in the year, students are prepared to put this knowledge to work in investigating various life and Earth systems in later units.

**Segment 1:** Students explore how matter is made up of particles too small to be seen, but that those particles can still be detected. Students then use these understandings to explain the process of “making a cloud in your mouth.”

Construct initial explanation and prediction of anchoring phenomenon.

Carry out an investigation that shows how one can form a cloud in the mouth.

Develop and use a model to show that matter is made of particles that are too small to be seen.

Develop and use a model to show arrangement of particles in different states of matter.

Revise explanation and prediction made about anchoring phenomenon using particle model.

**Segment 2:** Students plan and conduct investigations to identify the various types of properties that can be used to identify and describe substances and to investigate a “mystery matter” and determine if it is the same as the substances that were mixed or if it is a new substance.

Examine a mystery substance and discuss different properties used to characterize substances.

Construct an explanation about how properties of matter can be used to compare and contrast materials.

Use properties of substances to determine if substances are the same or different before and after mixing.

Revise explanation and prediction made about anchoring phenomenon using evidence obtained from properties of the mystery matter.

**Segment 3:** Students observe and measure properties after heating and cooling and when substances are mixed. Students revisit their particle model to show matter in different states and the structure of mixtures where particles of the original substances still exist but are now mixed together.

Predict and observe how different colors move when added to milk as evidence of a mixture.

Characterize weights of substances and mixtures during physical change.

Investigate reversible physical changes using mixtures and solutions.

Revise explanation and prediction made about anchoring phenomenon using understanding of mixtures and solutions.

**Segment 4:** Students investigate formation of new substances in mixing, using properties to identify if a new substance is formed. Students investigate if matter is added or lost in this. They revise their particle model and explanation of the anchor phenomenon.

Investigate the formation of new substances after mixing.

Obtain and use information to determine when a new substance has been formed.

Develop and use a particle model of new substance formation and its implications for weight.

Plan and carry out an investigation to find out what went right in the anchoring phenomenon.

Present an explanation of what went wrong in the anchoring phenomenon.