

INVESTIGATING MATTER, COOL BALLOONS

(MODIFIED FOR ADEED)

INSTRUCTIONS



Science Concept:

Matter can be solid or liquid.

Objectives:

The student will:

- identify matter as solid or liquid;
- make a generalization; and
- write sentences.

GLEs Addressed:

Science

[4] SB1.1 The student demonstrates an understanding of the structure and properties of matter by identifying and comparing the characteristics of gases liquids, and solids.

[4] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

Writing

[1] W1.2.2 The student writes for a variety of purposes and audiences by writing a variety of responses to text (e.g., response logs, journals).

Vocabulary:

liquid – a substance that flows freely but is of constant volume, having a consistency like that of water or oil

matter- physical substance in general, as distinct from mind and spirit; (in physics) that which occupies space and possesses rest mass

scientist - a persn who is studying or has expert knowledge of one or more of the natural or physical sciences

solid – firm and stable in shape; not liquid or fluid

Materials:

- *Solids, Liquids, and Gas* (Rookie Read-About Science), Ginger Garrett, 2005.
- KWL Chart
- Water balloon (one for each group)
- Ice balloon (one for each group)
- Tub or container to hold the ice and water balloons
- Goggles (one per student)
- Tools to observe with such as: small hammer, metal fork, nails, toothpicks, plastic knife, etc (shared among students)
- Science journal (one per student)
- STUDENT WORKSHEET: “Solid or Liquid?”

Activity Preparation:

1. Fill water balloons. Prepare some extras in case one breaks during the Explore activity.
2. Make a frozen water balloon by filling a balloon with water and placing it in a freezer at least one day prior to use. Be sure to leave enough air in the balloon to allow for expansion. Remove the balloon so just the ice from inside is given to students during the Explore activity.
3. Create a KWL chart on paper.

Activity Procedure:

Please refer to the assessment task and scoring rubric located at the end of these instructions. Discuss the assessment descriptors with the class before teaching this lesson.

Gear Up

Process Skills: describing, communicating and classifying

1. Ask students what they know about solids and liquids. Record student responses on the KWL chart.
2. Read the book Solids, Liquids, and Gas (Rookie Read-About Science,) and discuss.
3. Have students define and discuss the vocabulary words (matter, liquid, solid, scientist). Write the student definitions on the board.

Explore

Process Skills: observing, collecting data and describing

4. Tell students they will be scientists and observe two forms of matter- water (liquid) and ice (solid) during an investigation. Explain that they will use their senses of touch and sight.
5. Show them a water balloon and ice balloon. Tell them that each group will get one of each kind of balloons to observe. Review how they must wear safety goggles when investigating. They may use any of the tools provided. Ask students to record their observations about the water being a liquid and the ice balloon being a solid in their science notebooks by using pictures and/or words.
6. Divide the class into small groups. Have students explore for 20 minutes or longer.

Generalize

Process Skills: describing, communicating making generalizations

7. Bring the students together after the investigation and ask the following questions:
 - a. How did the ice balloon feel?
 - b. How did the water balloon feel?
 - c. What happened when you moved the water balloon?
 - d. What tools changed the ice balloon?
 - e. What tools changed the water balloon?
 - f. What would happen if the ice balloon was left in the classroom for several hours?
 - g. What would happen if the ice balloon was placed in water?

Apply

Process Skills: describing and communicating

8. In your science journal, draw pictures of what the local river looks like when it is a liquid, and when it is a solid. Write a sentence to go with each picture.

Extension Ideas:

1. Ask an ice craver to visit the classroom and explain their work.
2. Invite a scientist who works with ice to the classroom.
3. Create pictures using watercolors and an ice cube instead of a brush to paint.
4. Do an ice balloon toss game outside.
5. Make ice treats.



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RUBRIC

Assessment Task:

Each student will be complete Student Worksheet "Solid or Liquid?" They will attach the worksheet in their science journal and write at least three complete sentences describing why they identified the pictures as a solid or liquid. They will write one or more generalizations about solids and/or liquids.







Rubric:

Objective	GLE	Below Proficient	Proficient	Above Proficient
The student will identify matter as a solid or a liquid	[4] SB3.1	The student will identify four or fewer pictures as a solid or a liquid.	The student will identify five pictures as a solid or liquid.	The student will identify six or more pictures as a solid or a liquid.
The student will make a generalization.	[4] SA 1.1	The student does not write one generalization.	The student will write one generalization.	The student will write two or more generalizations.
The student will write sentences.	[1] W1.2.2	The student writes two or fewer complete sentences.	The student writes three complete sentences.	The student writes four or more complete sentences.

NAME: _____

SOLID OR LIQUID?

Directions: Make an X where the picture belongs.

Object	Solid	Liquid
 water		
 chair		
 books		
 bottle of shampoo		
 pencil		
 ice cube		