

What Is a Liquid? What Is a Solid?



Focus: Students investigate various objects in order to identify them as either liquids or solids.

Specific Curriculum Outcomes

Students will be expected to:

- 1.0 pose questions that lead to exploration and investigation [GCO 2]

Performance Indicators

Students who achieve these outcomes will be able to:

- ask questions to help them identify items as either liquids and solids
- list several examples of liquids and solids

NOTES:

Attitude Outcome Statements

Encourage students to:

- show interest in and curiosity about objects and events within the immediate environment [GCO 4]

Cross-Curricular Connections

Social Studies

Students will be expected to:

- describe how people's interactions with their environment have changed over time [2.4.2]

English Language Arts

Students will be expected to:

- speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences [GCO 1]

Getting Organized

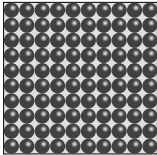
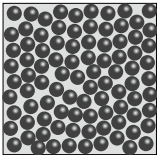
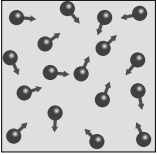
Components	Materials	Before You Begin	Vocabulary
• IWB Activity 1 • Science Card 1 • BLM <i>Examples of Liquids and Solids</i> • IWB Activity 2 • Anchor Video: <i>Liquids and Solids</i>	• sticky notes • students' Science Folders • students' Science Journals • digital camera (optional)	• Prepare a "mystery box" containing various liquids and solids, such as a block of wood, glue stick, crayon, cotton ball, piece of tin foil, ketchup packet, travel-size hand sanitizer, juice box, snack-size tube of yogurt, liquid-filled stress ball.	• liquid • solid

Safety

- Ensure students understand that they are not to taste any of the items from the mystery box or around the classroom.

Science Background

- Liquid and solid are just two of the possible states (or forms) of matter. Other states include gas, plasma, and Bose-Einstein condensate.
- The state or form of any given type of matter depends on how close together the particles are. Water in the form of ice, for example, has particles that are much closer together than water in the form of condensate.

State of Matter	Arrangement of Particles	Movement of Particles	Takes the Shape of a Container?	Expands to Fill a Container?
Solid		low	no	no
Liquid		medium	yes	no
Gas		high	yes	yes

ACTIVATE



Mystery Box

Write the words “liquid” and “solid” on the Word Wall. Ask students if they have ever heard these words. Ask:

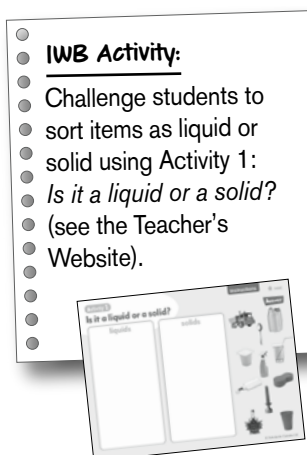
- What do you think a liquid is? Can you think of an example?
- What do you think a solid is? Can you think of an example?

As students brainstorm, record any descriptive words on chart paper or the IWB, such as “runny” and “hard.”

Introduce a mystery box that contains various liquids and solids (e.g., a block of wood, glue stick, crayon, cotton ball, piece of tin foil, ketchup packet, travel-size hand sanitizer, juice box, snack-size tube of yogurt, liquid-filled stress ball). Invite students to take turns pulling items out of the box. As each item is pulled out of the mystery box, ask:

- Is this a liquid, a solid, or a mystery?

Have students pass each item around and examine it as they discuss the question. Remind students not to use their sense of taste to investigate the items.



CONNECT



Liquid or Solid?

Have students examine Science Card 1 and take turns identifying the items in the photos. As each item is identified, write its name (e.g., tomato, basket) at the top of a sticky note and post it on or beside the Science Card.



Invite students to discuss each item and whether it is a liquid or a solid. Encourage students to generate questions to help them decide. Record their questions on the I Wonder Wall. If necessary, model with questions such as:

- What makes something a liquid?
- How do we know something is a solid?
- Are all liquids runny? Are all solids hard?

As students make a decision about each item, invite someone to come up and write an “L” or an “S” on the item’s sticky note. Students can also write a “?” on the sticky note to indicate it is a mystery. (Students may find some items difficult to classify, for example, students may classify vegetables as solids but they contain liquid or moisture.)

CONSOLIDATE

Examples of Liquids and Solids

Examples of Liquids	Examples of Solids



Examples of Liquids and Solids

Provide a copy of BLM *Examples of Liquids and Solids* for each student and have them fill in the BLM by writing or drawing some of the liquids and solids they identified from the mystery box and Science Card 1. Have students store their completed BLMs in their Science Folders.



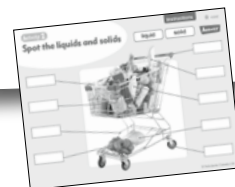
Anchor Video

Play the Anchor Video: *Liquids and Solids* which is located on the Teacher’s Website. Set a focus for viewing by asking students to think about what makes something a liquid or a solid. You may choose to pause the video to allow students to answer questions or to discuss any questions which students may have. Ask students to identify the images in the video as liquid or solid and add these to their Examples of Liquids and Solids list.

After playing the video, work with students to formulate broad definitions for “liquid” and “solid.” Record each definition on chart paper and post it on the wall. Have students record these definitions in their Science Journals.

IWB Activity:

- Students can use
- Activity 2: *Spot the liquids and solids* (see
- the Teacher’s Website)
- to label items as liquid or solid.



EXPLORE MORE

Classroom Search

Invite students to search the classroom: half of them can look for liquids while the other half looks for solids. Students can then create a digital or hand-drawn collage of images showing the items they discovered.

Examples of Liquids and Solids

Name: _____

Examples of Liquids	Examples of Solids