"Solids and Liquids"
Grade 1 – Summative Assessment

Assessed Understandings

Students will understand:

1. Solids and liquids can be described by their physical properties.
2. Solids and liquids can be sorted by the physical properties.
3. Physical properties can be used to categorize solids and liquids.

Teacher Notes for the Solids and Liquids Assessment

Introduction

These items are designed to provide an assessment of what students know, understand, and can do at the completion of the Science & Technology for Children (STC) "Solids and Liquids" module. This document includes teacher directions and analytic scoring rubrics for each question. A separate document contains the anchor papers for each question. A close look at the rubrics prior to the administration of the assessment will be helpful to the teacher.

Time and Preparation for the Assessment

This assessment should take about **one hour** to administer. You are free to read aloud any or all portions of the assessment to your students. Without giving away a more appropriate response, please help students understand the intent of the question or task. This is not a test of reading, writing, or artistic ability. Students may be encouraged to use any and all resources available, including material from classroom charts and individual journals.

Leave property charts up from classroom work.

Prior to the assessment, the teacher will need to have the following materials *from the kit* available for each student; students may share if needed:

- Ice cubes—put individual ice cubes into small snack baggies or cups and return to freezer until ready for use
- Magnet
- One assessment
- A tray
- A baggie that contains the following items:
  - Sponge
  - Square wooden bead
  - Transparent cube
  - Cylinder
  - Unifix cube
  - Cork
- One cup of oil
- One cup of water

Directions for Administration

Bolded print indicates the read-aloud teacher instructions to students.

"On your desk is a cup of water, a cup of oil, and a baggie of objects that you might use to help you answer the questions. You may also want to use your journals and charts on the wall. Remember that when we do science, we don't place anything in our mouths. Pick up your baggie of objects. Please take a sponge and a transparent cube out of the bag.

Question 1: Now point to number 1 on your paper. Please read number 1 to yourself as I read it aloud. Observe the sponge carefully. Write two physical properties of the *sponge* on the lines below."

1. Observe the sponge carefully. Write **two** physical properties of the **sponge.**

   Example: The sponge is blue.

   The sponge _____ .

   The sponge _____ .

Question 2: "Think of the physical properties of the cube. Read number 2 to yourself while I read it aloud. Observe the cube carefully. Write two physical properties of the *cube*."

2. Observe the cube carefully. Write **two** physical properties of the **cube.**

   Example: The cube is transparent.

   The cube _____ .

   The cube _____ .

Question 3: "Please read number 3 to yourself as I read it aloud. A sponge is a solid. What physical property tells you a sponge is a solid?"

3. A sponge is a solid. What physical property tells you a sponge is a solid?

   _____

   _____

   _____

Question 4: "Please read question 4 to yourself as I read it aloud. Oil is a liquid. What physical property tells you oil is a liquid?"

4. Oil is a liquid. What physical property tells you oils is a liquid?

_____

_____

_____

Question 5: "I will give you two pieces of ice in a cup and a cup of water." (Give each student two ice pieces in a cup or in a baggie and a cup of water.) **"Put the cups on your desk. Observe the ice and the water. Think of some properties of ice. Find number 5 on your paper. Read number 5 to yourself as I read it aloud. Observe water when it is a solid. Write two physical properties of ice."**

5. Observe water when it is a solid. Write **two** physical properties of ice.

The ice _____ .

The ice _____ .

Question 6: "Pick up an ice cube. Place the ice cube between your hands. You will hold it above the cup. Wait until it partially melts before you go on with the test. Think of some properties of water. Write two physical properties of water."

"Think about the physical properties of ice and water. Read number 6 to yourself as I read it aloud. Name one way the properties of ice and water are different."

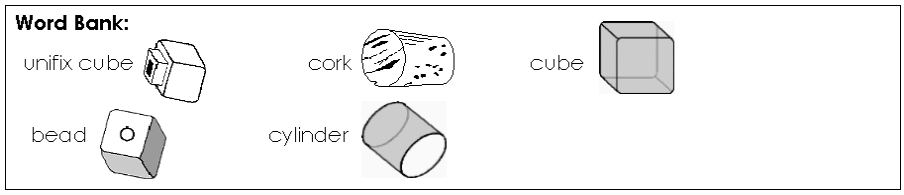
6. Name **one** way the properties of ice and water are different.

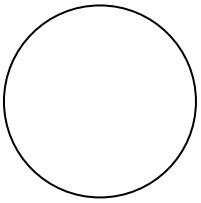
_____

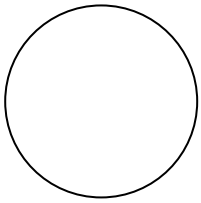
Question 7: NOTE: Students will need a cup of water, a magnet, a blue Unifix cube, a square wooden bead, a transparent cube, a cylinder, and a cork. Each student needs a copy of the Word Bank or you may write the words on the board.

"Now please take out the baggie with the blue Unifix cube, square wooden bead, transparent cube, cylinder, cork, and follow my directions. Sort the objects according to their physical properties in the circles. You may use the cup of water and the magnet to help you. You must use all 5 objects."

7. Sort the objects into **two groups** by physical properties. Write the names of the physical properties you used to sort the objects.







_____ _____

Scoring Rubrics
"Solids and Liquids"
Summative Assessment

Question 1: Observe the sponge carefully. Write two physical properties of the *sponge*.

This question measures a student's ability to observe and record physical properties of a sponge.

Criterion for a complete response:

1. Records two physical properties with words describing the shape and hardness of the sponge (e.g., stack, non-magnetic, or floats) or any other accurate response.

Code	Response
	Completely Correct Response
20	Records two correct physical properties for the sponge.
21	Records two general categories (e.g., student writes "color" and "shape").
29	Any other completely correct response.
	Partially Correct Response
10	Records one correct physical property for the sponge.
11	Records one general category (e.g., student writes "shape").
19	Any other partially correct response.
	Incorrect Response
70	Records washing/cleaning which are uses.
71	Records soaks up spills—goes to absorbing of materials.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 2: Observe the cube carefully. Write two physical properties of the *cube*.

This question measures a student's ability to observe and record physical properties of a cube.

Criterion for a complete response:

1. Records two physical properties with words describing the exact color, shape, size, and hardness of the cube (e.g., stack, non-magnetic, or floats) or any other accurate response.

Code	Response
	Completely Correct Response
20	Records two correct physical properties for cube.
21	Records two general categories for the cube (e.g., student writes "color" and "shape").
29	Any other completely correct response.
	Partially Correct Response
10	Records one correct physical property for cube.
11	Records one general category for the cube (e.g., student writes "color").
19	Any other partially correct response.
	Incorrect Response
70	Records that, "It rolls."
76	Repeats the substance or stem of the question.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 3: A sponge is a solid. What physical property tells you a sponge is a solid?

This question measures a student's ability to recognize that solids hold their shape.

Criterion for a complete response:

1. Expresses that solids have different physical properties than liquids (e.g., stacks and rolls, does not pour, hard, is not fluid, does not flow, does not take the shape of its container, or holds the shape).

Code	Response
	Complete Response
10	Meets criterion.
	Incorrect Response
70	Records color.
76	Repeats the substance or stem of the question.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 4: Oil is a liquid. What physical property tells you oil is a liquid?

This question measures a student's ability to recognize that liquids are fluid and will take the shape of their container.

Criterion for a complete response:

1. Expresses that it flows or will take the shape of its container.

Code	Response
	Complete Response
10	Response meets criterion above.
19	Any other completely correct response.
	Incorrect Response
70	Records color.
71	Records that it mixes.
76	Repeats the substance or stem of the question.
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 5: Observe water when it is a solid. Write two physical properties of ice.

This question measures a student's ability to classify objects on the basis of physical properties.

Criterion for a complete response:

1. Identifies two correct physical properties of ice (e.g., solid, cold, hard, clear, opaque, will melt, cube).

Code	Response
	Complete Response
20	Response meets criterion above.
21	Response lists general categories (e.g., student writes "shape" and "color").
29	Any other completely correct response.
	Partially Correct Response
10	Response lists one correct physical property.
11	Response lists one general property (e.g., student writes "color").
19	Any other partially correct response.
	Incorrect Response
70	Response indicates a use for ice (e.g., student writes, "You put it in your drink.").
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 6: Name one way the properties of ice and water are different.

This question measures student's ability to identify one distinct physical property of ice and water.

Criterion for a complete response:

1. Identifies one physical property that makes ice and water different (e.g., shape, solid, liquid, hard, not hard, one flows freely, it melts).

Code	Response
	Complete Response
10	Response meets the criterion above.
11	Lists a general category such as, "The shape is different," rather than "Water takes the shape of its container. Ice is a cube."
19	Any other scientifically correct response.
	Incorrect Response
70	Response states that, "It is water."
79	Any other incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 7: Sort the objects into two groups by physical properties.

This question measures student's ability to sort and identify the physical properties of the solid objects into two groups.

Criterion for a complete response:

1. Sorts five objects based on a physical property.

Code	Response
	Complete Response
10	Meets criterion above.
	Incorrect Response
70	Incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.

Question 8: Write the names of the physical properties you used to sort the objects.

This question measures a student's ability to identify physical properties.

Criterion for a complete response:

1. Identifies and labels the two physical properties of the five objects using mutally exclusive language (e.g., blue/not blue, floats/sinks, magnetic/non-magnetic).

Code	Response
	Complete Response
10	Meets criterion above.
	Incorrect Response
70	Incorrect response.
	Non-Response
90	Crossed out, erased, illegible, or impossible to interpret.
99	Blank.