

Water State Detectives

Observe clues for solid, liquid, and gaseous water.

SC.2.P.8.4 "Observe and describe water in its solid, liquid, and gaseous states."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that name each state of water. Circle a clue that tells how water looks or acts in each state.

Maya Watches Water

- ① On a cold morning, Maya finds a tray of ice cubes in the freezer. Each cube is hard and keeps its shape. Ice is water in its solid state. It does not pour like water from a cup.
- ② At breakfast, Maya pours liquid water into a glass. Liquid water flows and takes the shape of its container. A puddle, a lake, and water from a faucet are also liquid water. Liquid water can be moved from one container to another.
- ③ Later, Maya sees steam rise from a pot of hot soup. The steam is made of tiny drops of liquid water in the air. Water vapor is water in its gaseous state. It is invisible, but it can be in the air around us.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What state is the ice in the freezer? Give one detail that tells you.

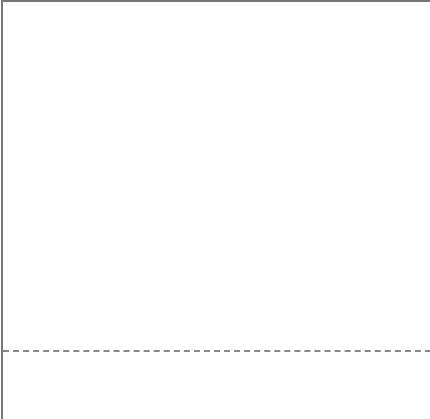
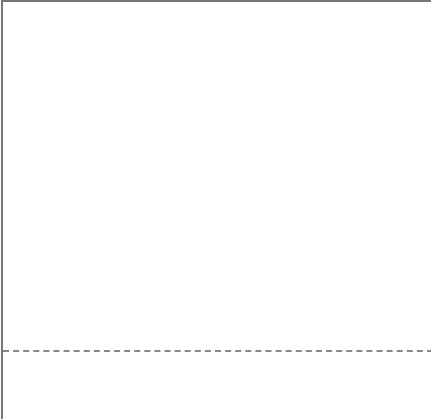
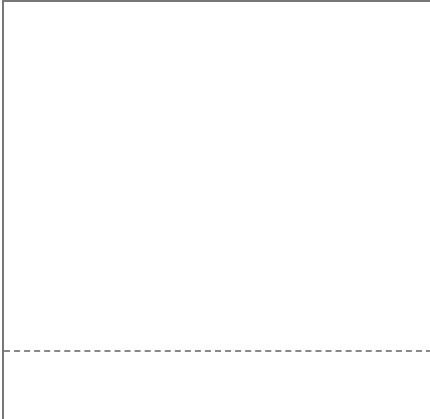
2 How does liquid water act when Maya pours it?

3 How are steam and water vapor different in the passage?

3 YOUR TURN

Your own words

First observe real water with your teacher. Watch an ice cube on a plate and water poured between two clear cups; describe the shape and flow of each. Teacher also sets out two identical dry clear cups with ice and water inside. One is exposed to room air; the other is immediately enclosed in a tightly closed clear bag with most air squeezed out. Observe their outside surfaces at Start and after 10 minutes. On extra paper draw and describe actual drops or no change. Discuss why drops on a cold surface are indirect evidence of invisible water vapor in air, not a view of gaseous water itself. Then make three panels about water you have seen. In each panel, draw water in one state, write solid, liquid, or gaseous, and write one clue about what it looks like or does. Use your observed solid/liquid clues; in the gaseous panel label invisible vapor and the cold-cup evidence. Do not draw visible drops as gas or drink the water.

		
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PART 1 • READ AND MARK

Underline the words that name each state of water. Circle a clue that tells how water looks or acts in each state. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What state is the ice in the freezer? Give one detail that tells you.	Ice is solid. It is hard and keeps its shape.
2	How does liquid water act when Maya pours it?	Liquid water flows and takes the shape of its container.
3	How are steam and water vapor different in the passage?	Steam is made of tiny drops of liquid water. Water vapor is gaseous water and is invisible.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Panel 1: Solid, an ice cube. It is hard and keeps its shape.

Panel 2: Liquid, water in a cup. It flows and takes the cup's shape.

Panel 3: Gaseous, water vapor in the air. It is invisible.

Accept accurate examples of water in all three states and a correct clue for each state. For gaseous water, accept water vapor as invisible, and distinguish it from visible steam, which is tiny liquid drops. Teacher supplies intact dry cups, ice, room-temperature water, plate, a clear zip-closing bag and timer; pretests humidity/condensation and handles cups/bag, supports child observation and recording. Keep cup outsides initially dry and avoid spills. The exposed cold cup may develop outside droplets from airborne vapor condensing; the bag reduces available moist air, so its cup may have fewer droplets. Both sets contain ice/liquid but gaseous water is invisible: droplets are liquid indirect evidence. If both remain dry, record that limitation and repeat in suitable conditions; no made-up drops or hot/boiling-water setup. Require actual solid shape, liquid flow and before/after condensation evidence descriptions. This safe room-temperature demonstration is adapted from ACS Lesson 2.3 Engage; <https://www.acs.org/middleschoolchemistry/lessonplans/chapter2/lesson3.html>.