

States of Matter: Ice Cube Ishaan's Hot Day

Read the story aloud together, then try the activities.

Name _____

Class _____

Date _____

In the freezer at Rohan's house lived an ice cube called Ishaan. Ishaan was a solid. He was hard, he was cold, and he had his very own shape — a neat little cube. Whether Rohan put him in a bowl, a glass or a cup, Ishaan stayed a cube. "That's what solids do," Ishaan said proudly. "We keep our shape."

One hot afternoon, Rohan dropped Ishaan into a glass of juice. It was warm in the kitchen. Ishaan began to feel soft at the edges. Drip... drip... His corners rounded. "What's happening to me?" "You're melting," said the glass. "Heat is turning you from a solid into a liquid." Slowly, Ishaan became water, spreading out to fill the bottom of the glass.

Now Ishaan was a liquid. He could slosh and pour. When Rohan tipped the glass into a bowl, Ishaan became bowl-shaped. When Rohan poured him into a bottle, he became bottle-shaped. "Liquids take the shape of whatever we're in," Ishaan laughed, "but there's still the same amount of me."

Rohan's mother poured some of the water into a pan and put it on the stove. The water grew hotter and hotter, and began to bubble. Ishaan felt himself getting lighter and lighter, until — whoosh! — he became water vapour, a gas, and floated up into the air. "I'm evaporating!" As a gas, Ishaan spread out all over the kitchen. Nobody could see him at all.

Rohan pointed at the cloudy white puffs coming from the pan. "Is that Ishaan?" "Almost," said his mother. "Real water vapour is invisible. Those white puffs are tiny drops of water, made when the vapour cools down as soon as it hits the air." Some of Ishaan bumped into the cold kitchen window and turned back into little drops of liquid that trickled down the glass. "Condensation!" said Rohan.

That evening, Rohan collected the drops in a tiny cup and put it in the freezer. The cold made Ishaan freeze back into a solid. The next morning, he was a little ice cube again. "Same water," said Ishaan, "just a different state. I've been a solid, a liquid and a gas — all in one day!"

1. Match each word to its meaning

Write the letter next to each word.

- | | |
|-----------------------|--|
| 1. Matter _____ | A. matter that flows and takes the shape of its container. |
| 2. Solid _____ | B. matter that spreads out to fill any space. |
| 3. Liquid _____ | C. a solid changing into a liquid when it is heated. |
| 4. Gas _____ | D. a liquid changing into a solid when it is cooled. |
| 5. Melting _____ | E. a liquid changing into a gas. |
| 6. Freezing _____ | F. a gas changing into a liquid when it is cooled. |
| 7. Evaporation _____ | G. anything that takes up space and has mass (weight). |
| 8. Condensation _____ | H. matter that keeps its own shape. |

2. Sort these into solid, liquid or gas.

Words: milk · rain · water vapour · air · the air in a balloon · ice cube · stone · wooden spoon · juice

Solid

Liquid

Gas

3. Answer the questions

1. Why did Ishaan stay a cube in the bowl, the glass and the cup?

2. What made Ishaan melt?

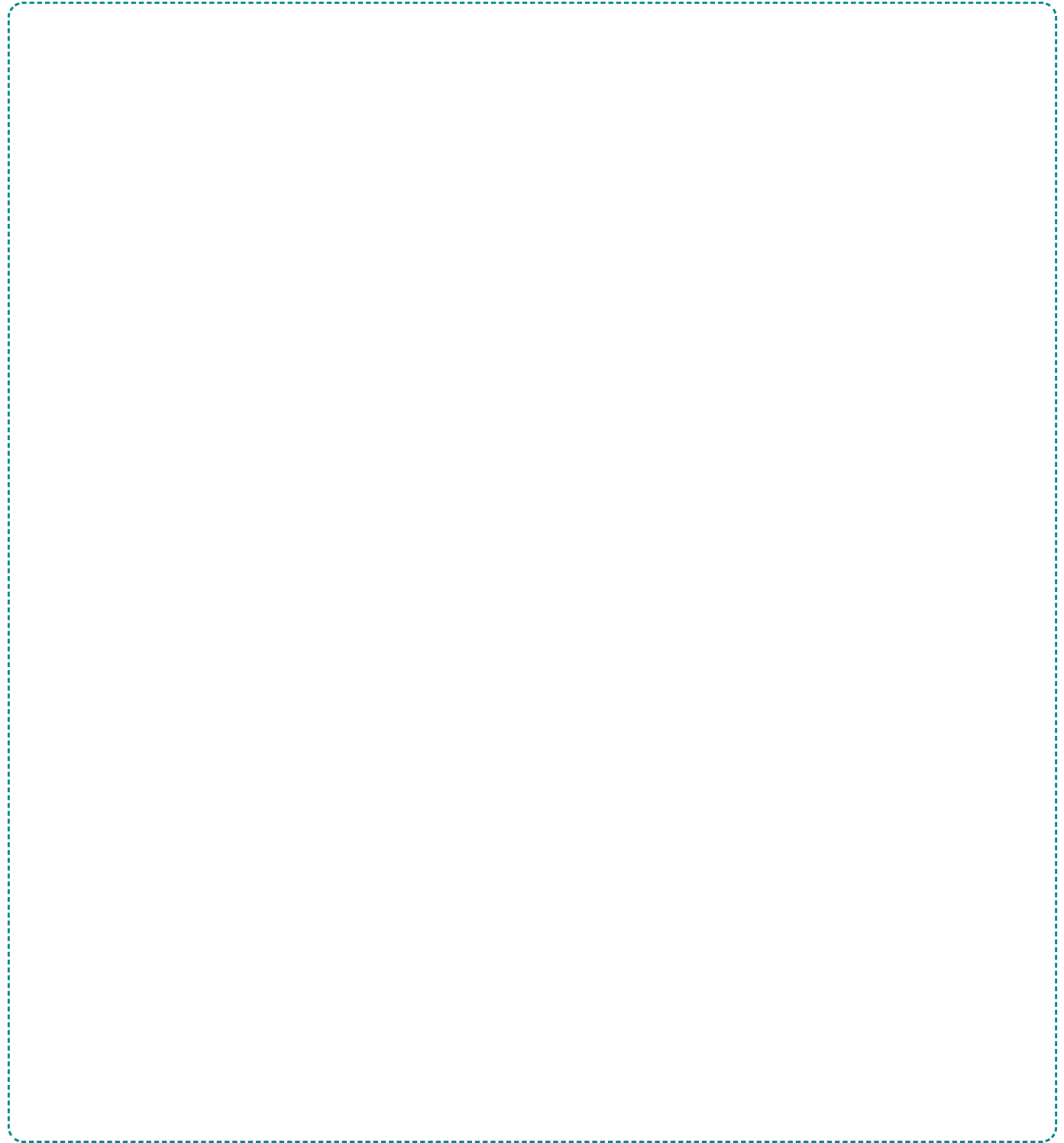
3. When Ishaan was poured into a bottle, what shape did he become? Why?

4. Could anyone see Ishaan when he was water vapour?

5. How did Ishaan turn back into a solid?

4. Draw and label

Draw Ishaan as a solid, a liquid and a gas. Label: melting, evaporation, condensation, freezing.

A large, empty rectangular box with a dashed teal border, intended for a drawing. It occupies the central portion of the page below the instructions.

Answer key (for teachers and parents)

On its own page so you can leave it out when printing for children.

1. 1-G 2-H 3-A 4-B 5-C 6-D 7-E 8-F

2. Solid: ice cube, stone, wooden spoon. Liquid: juice, milk, rain. Gas: water vapour, air, the air in a balloon

3.1 Because he was a solid, and solids keep their shape.

3.2 The heat in the warm kitchen.

3.3 Bottle-shaped, because liquids take the shape of their container.

3.4 No — water vapour is an invisible gas.

3.5 He was put in the freezer, and the cold made the water freeze.