

Nova's States of Matter Challenge

Learning objective: To identify and describe the properties of solids, liquids, and gases, and understand the processes of evaporation, condensation, and melting.

Join Nova the barn owl on a scientific flight! Answer these 10 questions to test your knowledge of how materials behave in different states. Read each question carefully and write your answers clearly.

Answer Key: 1. A (solid), 2. True, 3. Gas, 4. B (evaporation), 5. True, 6. Condensation, 7. C (they move randomly and quickly), 8. False, 9. Melting, 10. B (fixed volume but changing shape).

Word bank: solid · liquid · gas · evaporation · condensation · melting · freezing · particles

1. 1. Which state of matter has a fixed shape and a fixed volume? A) Solid* B) Liquid C) Gas D) Plasma (1 mark)

2. 2. True or False: Particles in a liquid can slide past one another. (1 mark)

3. 3. Which state of matter expands to fill the entire space of its container? (1 mark)

4. 4. What is the process called when a liquid turns into a gas? A) Freezing B) Evaporation* C) Melting D) Condensation (1 mark)

5. 5. True or False: Water vapour is an example of a gas. (1 mark)

6. 6. What do we call the process where gas turns into a liquid, such as dew forming on grass? (1 mark)

7. 7. How do particles behave in a gas? A) They vibrate in a fixed position B) They slide past each other C) They move randomly and quickly* D) They do not move at all (1 mark)

8. 8. True or False: A solid can easily be compressed (squashed) into a smaller space. (1 mark)

9. 9. If you leave an ice lolly in the sun, what process causes it to turn into a liquid? (1 mark)

10. 10. Which of these describes a liquid? A) Fixed shape and volume B) Fixed volume but changing shape* C) No fixed shape or volume D) None of the above (1 mark)

Draw: Draw three boxes. In the first, draw small circles packed tightly together to show a solid. In the second, draw the circles slightly apart to show a liquid. In the third, draw the circles spread far apart to show a gas.



Extension challenge: Nova wants to know: If you have a cup of water worth £1.50 and you freeze it into ice, does the mass of the water change? Explain your reasoning using the word 'particles'.