

Nova's States of Matter Challenge

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

Join Nova the owl as she flies through the night sky! Read each question carefully and select or write the correct answer. Good luck!

Answer Key: 1. A (solid), 2. False, 3. Gas, 4. B (melting), 5. True, 6. Evaporation, 7. C (fixed volume, no fixed shape), 8. True, 9. Condensation, 10. D (particles vibrate in fixed positions).

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

1. 1. Which state of matter holds its own shape and cannot be easily compressed? A) Solid* B) Liquid C) Gas D) Plasma (1 mark)

2. 2. True or False: Liquids can be squashed into a much smaller space. (1 mark)

3. 3. Which state of matter has particles that move quickly in all directions to fill the space available? (1 mark)

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

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

6. 6. What term describes a liquid turning into a gas due to heat? (1 mark)

7. 7. Which description best fits a liquid? A) Fixed shape and volume B) No fixed shape or volume C) Fixed volume, no fixed shape* D) No fixed volume, fixed shape (1 mark)

8. 8. True or False: When water freezes, it changes from a liquid to a solid. (1 mark)

9. 9. When steam hits a cold window and turns back into water droplets, what is this called? (1 mark)

10. 10. How do particles behave in a solid? A) They move freely B) They flow over each other C) They move at high speeds D) They vibrate in fixed positions* (1 mark)

Draw: Draw three boxes. In the first box, draw a 'solid' by placing neat, packed circles. In the second, draw a 'liquid' with circles slightly apart. In the third, draw a 'gas' with circles spread far apart throughout the box.



Extension challenge: Nova wants you to be a scientist at home! Find three items in your kitchen: one solid, one liquid, and one gas. Write a sentence for each explaining how you know what state of matter it is.