

## Nova's States of Matter Challenge

*Learning objective: To identify and describe the behavior 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)**

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

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

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

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

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

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**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)**

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

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

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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.*