

Worksheet: Matter in Our Surroundings

Maharashtra State Board · Class 9 · Science · 16 questions · 44 marks

Name: _____

Date: _____

Score: _____ / 44

Q1. Define 'matter' in one sentence and give two examples that are NOT matter. [1 mark]

Q2. Convert 27 °C to Kelvin. [1 mark]

Q3. Convert 373 K to Celsius. [1 mark]

Q4. Why does the smell of hot food reach you faster than that of cold food? [2 marks]

Q5. Name the process when (a) iodine crystals are heated and turn directly to vapour, (b) water vapour in air turns into dew on a cold surface. [2 marks]

Q6. List two differences between liquids and gases at the particle level. [2 marks]

Q7. How much heat is required to convert 200 g of ice at $0\text{ }^{\circ}\text{C}$ completely to water at $0\text{ }^{\circ}\text{C}$? (L_f of ice = 334 kJ/kg) [3 marks]

Q8. Calculate the heat released when 50 g of steam at $100\text{ }^{\circ}\text{C}$ condenses to water at $100\text{ }^{\circ}\text{C}$. (L_v of water = 2260 kJ/kg) [3 marks]

Q9. Explain at the particle level why a wet earthen pot keeps water inside cooler than a metal pot does. [3 marks]

Q10. Why does the temperature of water remain at $100\text{ }^{\circ}\text{C}$ while it is being boiled even though heat is continuously supplied? [3 marks]

Q11. How much heat is needed to convert 100 g of ice at $0\text{ }^{\circ}\text{C}$ to water at $50\text{ }^{\circ}\text{C}$? ($L_f = 334\text{ kJ/kg}$, $c_{\text{water}} = 4.2\text{ kJ/kg}\cdot^{\circ}\text{C}$) [4 marks]

Q12. Wet clothes dry faster on a windy summer afternoon than on a calm winter morning. Give two distinct reasons. [3 marks]

Q13. Calculate the total heat required to convert 50 g of ice at 10 °C to steam at 100 °C. Given: $c_{\text{ice}} = 2.1$ kJ/kg·°C, $L_f = 334$ kJ/kg, $c_{\text{water}} = 4.2$ kJ/kg·°C, $L_v = 2260$ kJ/kg. [5 marks]

Q14. Explain why CNG (compressed natural gas) is sold compressed under high pressure but petrol is sold at atmospheric pressure. [4 marks]

Q15. When dry ice (solid CO) is exposed to room conditions it forms a 'mist' a few centimetres above its surface — yet dry ice itself doesn't melt to a liquid. Explain both observations. [4 marks]

Q16. At higher altitude (e.g. on a mountain), why does water boil at a temperature lower than 100 °C? [3 marks]
