

## Worksheet: Matter in Our Surroundings

Odisha 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]*

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**Q2.** Convert 27 °C to Kelvin. *[1 mark]*

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

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

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**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]*

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

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

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**Q8.** Calculate the heat released when 50 g of steam at 100 °C condenses to water at 100 °C. ( $L_v$  of water = 2260 kJ/kg) [3 marks]

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

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**Q10.** Why does the temperature of water remain at 100 °C while it is being boiled even though heat is continuously supplied? [3 marks]

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

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

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**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]

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

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**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]

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

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