Worksheet: Matter in Our Surroundings

NIOS · 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 °C completely to water at 0 °C? (L_f of ice = 334 kJ/kg) *[3 marks]*

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]*

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 °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 °C to water at 50 °C? (L_f = 334 kJ/kg, c_water = 4.2 kJ/kg·°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_ice = 2.1 kJ/kg·°C, L_f = 334 kJ/kg, c_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_2) 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]*