

Review topic: Chemistry in daily life

Ways to practice skills		R	A	G	Comment
10.1 Water					
1	Describe chemical tests for the presence of water using anhydrous cobalt(II) chloride and anhydrous copper(II) sulfate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Describe how to test for the purity of water using melting point and boiling point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Explain that distilled water is used in practical chemistry rather than tap water because it contains fewer chemical impurities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	State that water from natural sources contains a variety of substances, including: a. dissolved oxygen b. metal compounds c. plastics d. sewage e. harmful microbes f. nitrates from fertilisers g. phosphates from fertilisers and detergents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	State that some of these substances are beneficial, including: a. dissolved oxygen for aquatic life b. some metal compounds provide essential minerals for life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	State that some of these substances are potentially harmful, including: a. some metal compounds are toxic b. some plastics harm aquatic life c. sewage contains harmful microbes which cause disease d. nitrates and phosphates lead to deoxygenation of water and damage to aquatic life Details of the eutrophication process are not required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	Describe the purification of the domestic water supply in terms of: a. sedimentation and filtration to remove solids b. use of carbon to remove tastes and odours c. chlorination to kill microbes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Ways to practice skills	R	A	G	Comment
10.2 Fertilisers					
1	State that ammonium salts and nitrates are used as fertilisers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Describe the use of NPK fertilisers to provide the elements nitrogen, phosphorus and potassium for improved plant growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Ways to practice skills		R	A	G	Comment
10.3 Air quality and climate					
1	State the composition of clean, dry air as approximately 78% nitrogen, N ₂ , 21% oxygen, O ₂ and the remainder as a mixture of noble gases and carbon dioxide, CO ₂	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	State the source of each of these air pollutants, limited to: a. carbon dioxide from the complete combustion of carbon-containing fuels b. carbon monoxide and particulates from the incomplete combustion of carbon-containing fuels c. methane from the decomposition of vegetation and waste gases from digestion in animals d. oxides of nitrogen from car engines e. sulfur dioxide from the combustion of fossil fuels which contain sulfur compounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	State the adverse effects of these air pollutants, limited to: a. carbon dioxide: higher levels of carbon dioxide leading to increased global warming, which leads to climate change b. carbon monoxide: toxic gas c. particulates: increased risk of respiratory problems and cancer d. methane: higher levels of methane leading to increased global warming, which leads to climate change e. oxides of nitrogen: acid rain, photochemical smog and respiratory problems f. sulfur dioxide: acid rain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	State and explain strategies to reduce the effects of these environmental issues, limited to: a. climate change: planting trees, reduction in livestock farming, decreasing use of fossil fuels, increasing use of hydrogen and renewable energy, e.g. wind, solar b. acid rain: use of catalytic converters in vehicles, reducing emissions of sulfur dioxide by using low-sulfur fuels and flue gas desulfurisation with calcium oxide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Describe photosynthesis as the reaction between carbon dioxide and water to produce glucose and oxygen in the presence of chlorophyll and using energy from light	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	State the word equation and symbol equation for photosynthesis, carbon dioxide + water → glucose + oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7	<p>Describe how the greenhouse gases carbon dioxide and methane cause global warming, limited to:</p> <p>a. the absorption, reflection and emission of thermal energy</p> <p>b. reducing thermal energy loss to space</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	<p>Explain how oxides of nitrogen form in car engines and describe their removal by catalytic converters, e.g. $2\text{CO} + 2\text{NO} \rightarrow 2\text{CO}_2 + \text{N}_2$</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	<p>State the symbol equation for photosynthesis, $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	