

Waste management (water, land, air pollution)

Q1. (2022)

02	Level 3: Relevant points (reasons/causes) are identified, given in detail and logically linked to form a clear account.	5–6	AO3
	Level 2: Relevant points (reasons/causes) are identified, and there are attempts at logical linking. The resulting account is not fully clear.	3–4	AO3 AO1
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1–2	AO1
	No relevant content	0	
2 cont.	<p>Indicative content</p> <p>Increase in world population</p> <ul style="list-style-type: none"> sewage (released into rivers / lakes / seas) <ul style="list-style-type: none"> causes algae to grow algae block light causing plants to die and decompose leading to lack of oxygen in the water (sewage) could contain pathogens <p>Need to produce more food for world's population</p> <ul style="list-style-type: none"> fertilisers (used on farms to increase crop yield, leach into rivers / lakes / seas) <ul style="list-style-type: none"> causes algae to grow leading to lack of oxygen in the water herbicides / pesticides (used on farms to increase crop yield, run into rivers / lakes / seas) <ul style="list-style-type: none"> build-up in food chains <p>Increasing demand for products / energy</p> <ul style="list-style-type: none"> toxic chemicals or named toxic chemicals (run into rivers / lakes / seas) <ul style="list-style-type: none"> from factories / industry or power stations build-up in food chains chemicals may cause mutations or chemicals may act as hormones radiation leaks from nuclear (power stations) (oil) spills from extraction / rigs / tankers in oceans acid rain formation acidification of lakes increased carbon dioxide emissions causes acidification of oceans <p>Buildup of waste products</p> <ul style="list-style-type: none"> litter / plastics (thrown in rivers / lakes / seas) <ul style="list-style-type: none"> example of effect on living organisms, such as plastics consumed or plastics build up in stomach or plastics get stuck around beaks (most) plastics are not biodegradable build-up of microplastics in water animals <p>Consequence of the above is that organisms living in rivers / lakes / seas are harmed / die</p> <p>For Level 3 students need to consider different types of pollution</p>		4.7.3.2 4.7.2.1

Q2. (2024)

01.7	<p>any one from:</p> <ul style="list-style-type: none"> fertiliser sewage toxic chemicals 	<p>allow named toxic chemical eg herbicide / pesticide / insecticide / DDT / (crude) oil</p> <p>allow (micro)plastics</p> <p>allow (dissolved) carbon dioxide</p> <p>allow heavy metals</p> <p>allow thermal pollution</p>	1	AO2 4.7.3.2
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Q3. (2024)

A)

05.3	$(\frac{216}{4} =) 54$	allow $(\frac{216\ 000}{4000} =) 54$	1	AO2 4.7.3.2
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B)

05.4	as number of bacteria increases, the concentration of dissolved oxygen decreases	ignore references to inversely proportional allow as bacteria increases, oxygen decreases allow there is a negative correlation allow converse	1	AO3 4.7.3.2
	(the relationship is) not number of bacteria increases and the concentration of oxygen increases (in the same ratio)	allow (the relationship is) not as bacteria increases, oxygen increases allow whereas proportional (relationship) would mean as one increases the other increases (in the same ratio) allow converse	1	

C)

05.5	(decrease in oxygen concentration causes a) decrease in the number of fish	allow (decrease in oxygen concentration means) more fish die	1	AO3
	(because) fish need oxygen to respire (aerobically)	allow invertebrates need oxygen to respire and fish eat invertebrates do not accept implications that otters require oxygen from water do not accept energy produced / made / created by respiration	1	AO2
	(therefore) otter population decreases due to less food	allow rate of reproduction (in otter population) is lower due to less food allow otters migrate to another river / area / habitat ignore decrease in oxygen causes decrease in otter population unqualified alternative answer (decrease in oxygen concentration means) more bacteria are present (1) (so) more fish die (from bacterial infection) (1) (therefore) otter population decreases due to less food or rate of reproduction (in otter population) is lower due to less food or otters migrate to another river / area / habitat (1)	1	AO2 4.7.2.1 4.7.3.2 4.4.2.1