

Decomposition Decay

GCSE Biology · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain why a compost heap decays faster in summer than in winter. (2 marks)

Step 1 · Temperature

It is warmer in summer.

Step 2 · Decomposers

Microorganisms' enzymes work faster in warmth (up to an optimum), so they digest the material and respire more quickly.

Answer: Warmer → decomposers' enzymes work faster

Check: Very high temperatures would denature the enzymes.

2. Now try one with the steps

Explain why the pH of milk falls decays, and why phenolphthalein is used. (3 marks)

Step 1 · Lipase

Step 2 · pH

Step 3 · Indicator

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Give three factors that affect the rate of decay. [3]

2. Name two types of decomposer. [2]

3. Why do gardeners make compost? [1]

4. Name the gas produced by anaerobic decay that can be used fuel. [1]
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5. Explain why food lasts longer in a fridge. [2]
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6. Explain why dried food decays very slowly. [1]
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7. State the independent and dependent variables in the milk decay practical. [2]
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8. Give two control variables in the milk decay practical. [2]
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9. At 40 °C the colour changed in 100 s. Calculate the rate using $1000 \div \text{time}$. [1]
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10. Explain why there was no colour change at 60 °C. [2]
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11. Compost lost 2.4 kg in 16 weeks. Calculate the mean rate of decay in kg per week. [1]
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12. Calculate the percentage increase in rate from 20 °C (rate 3.8) to 40 °C (rate 10.0), to the nearest whole number. [2]
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13. Explain why a biogas generator must be kept sealed. [2]
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14. Suggest one reason the results of the milk practical may be hard to judge, and an improvement. [2]
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4. Before you hand it in

"Decay is fastest at the highest temperature."

Decay is fastest at an optimum (often about 35–40 °C); above it, enzymes denature.

"Compost heaps should be sealed."

Compost heaps need oxygen and moisture; turn them to let air in.

"Phenolphthalein measures the amount of bacteria."

Phenolphthalein shows when the pH has fallen (due to fatty acids), indicating decay.