

Indicator species and decomposition: practice questions

5 questions • 15 marks • mark scheme at the back

For Edexcel GCSE Biology 1BI0 and Combined Science 1SC0. **Triple only** is not in Combined Science. **Higher tier** is only on the Higher paper.

Name

Total / 15

1 **Triple only** **Higher tier** [2 marks]

A river contains many bloodworms and sludgeworms but no stonefly nymphs or freshwater shrimps. What does this suggest about the water?

2 **Triple only** **Higher tier** [4 marks]

Evaluate the use of lichens as indicator species to assess air quality, compared with measuring the concentration of sulfur dioxide with a meter.

3 **Triple only** [4 marks]

Explain how (a) vacuum packing and (b) adding salt each preserve food.

4

Triple only

[3 marks]

A gardener turns the compost heap regularly and keeps it moist but not waterlogged. Explain why this speeds up decomposition.

5

Triple only

[2 marks]

A sample of leaves had a mass of 20.0 g. After 5 days its mass was 14.0 g. Calculate the mean rate of decay in g per day.

Answer =

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [2] Triple only Higher tier

- it is polluted (1)
- with low oxygen levels / for example sewage (1)

2. [4] Triple only Higher tier

- lichens are cheap / easy / need no special equipment (1)
- they show the effect of pollution over a long period of time (1)
- but other factors, such as habitat or temperature, may affect lichens (1)
- they do not give an accurate or quantitative measure of pollution, whereas a meter gives a precise value for sulfur dioxide (1)

3. [4] Triple only

- vacuum packing removes oxygen (1)
- microorganisms need oxygen for aerobic respiration, so decomposition is slower (1)
- salt removes water from the microorganisms by osmosis / reduces available water (1)
- microorganisms need water to grow and reproduce (1)

4. [3] Triple only

- turning adds oxygen to the heap (1)
- decomposers need oxygen for aerobic respiration (1)
- decomposers need water, but waterlogging fills the air spaces so there is less oxygen (1)

5. [2] Triple only

- change in mass = $20.0 - 14.0 = 6.0$ g (1)
- $6.0 \div 5 = 1.2$ g per day (1) award 2 marks for a correct answer with no working