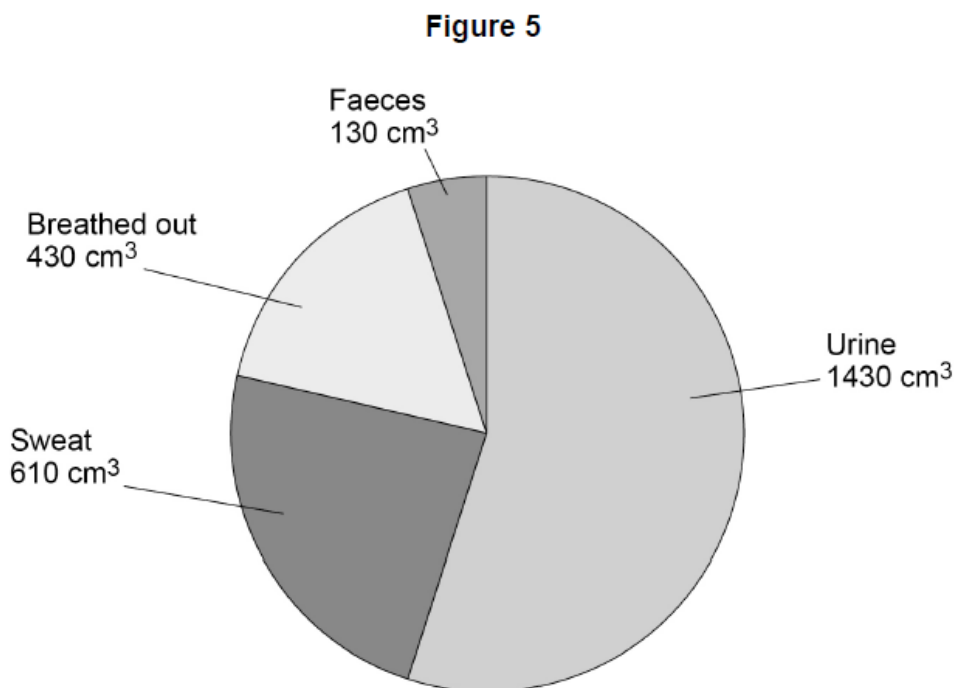


Homeostasis – GCSE Biology

1. No.4

Figure 5 shows the water loss from a person on one day.

0	4	.	1
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 The total water loss was 2600 cm³.

Calculate the percentage of the total water loss that was lost as urine.

[2 marks]

Percentage lost as urine = _____ %

A marathon race is 42 km long.

0 4 . 2

What happens to the volume of water lost as sweat when a person runs a marathon?
[1 mark]

0 4 . 3

What must marathon runners do to prevent themselves becoming dehydrated?
[1 mark]

0 4 . 4

Complete the sentences.

[3 marks]

Choose answers from the box.

digestion	excretion	fertilisation	filtration	reabsorption
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Blood entering the kidneys goes through the process of

_____.

Glucose is **not** found in urine because of _____.

Urine is removed from the body in the process of _____.

0 4 . 5 People with kidney failure can have dialysis or a kidney transplant.

Dialysis is often needed 3 times each week and can take over 4 hours each time.

Dialysis usually happens in a hospital.

Kidney transplants require a donor and major surgery.

Describe the advantages **and** disadvantages of having a kidney transplant instead of having dialysis.

[4 marks]

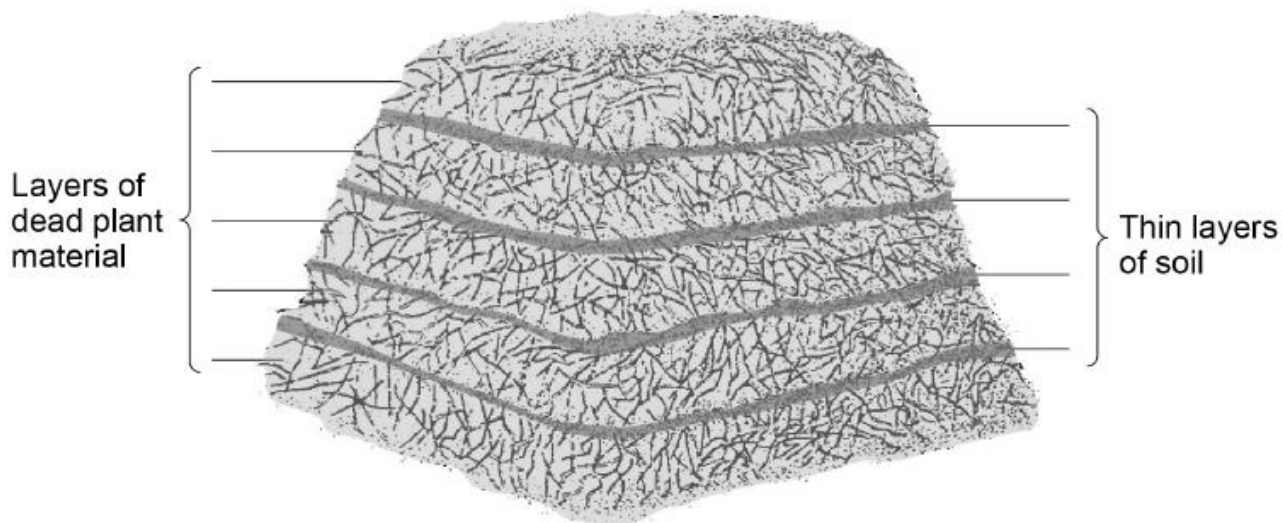
2. No.4

Gardeners sometimes make compost heaps from dead plant material.

The dead plants decay in the compost heap.

Figure 8 shows a compost heap.

Figure 8



0 4 . 1 The thin layers of soil contain organisms that cause decay.

Which **two** types of organism cause decay?

[2 marks]

Tick (✓) **two** boxes.

Bacteria

☐

Fungi

☐

Grass

☐

Insects

☐

Worms

☐

The rate of decay in the compost heap depends on several environmental factors.

0 4 . 2

Explain how the rate of decay would be affected by:

- an increase in oxygen concentration
- a temperature increase from 5 °C to 25 °C

[3 marks]

0 4 . 3

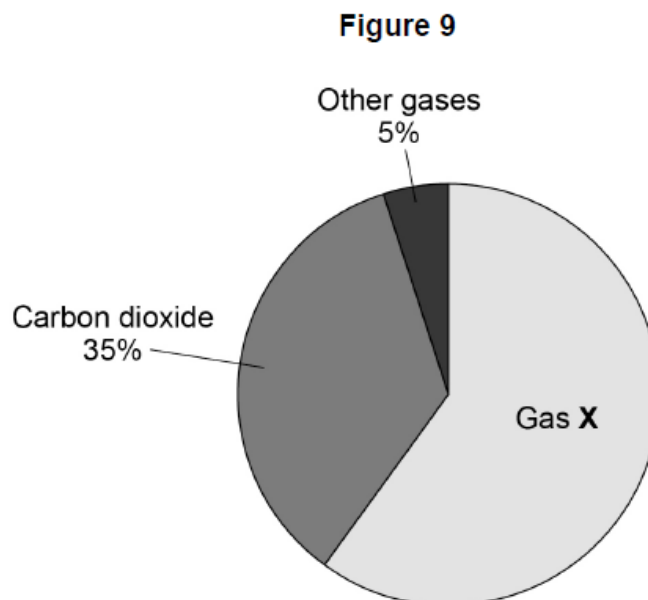
Give **one** environmental factor needed for decay.

Do **not** refer to oxygen or temperature in your answer.

[1 mark]

Dead plant material can also be decayed in a biogas generator.

Figure 9 shows the percentages of the gases found in a sample of biogas.



0 4 . 4 Gas **X** is the main fuel gas found in the biogas.

What is gas **X**?

[1 mark]

Tick (✓) **one** box.

Carbon monoxide

☐

Hydrogen

☐

Methane

☐

Nitrogen

☐

0 4 . 5

What is the percentage of gas X in the biogas?

[1 mark]

Percentage = _____ %

0 4 . 6

The dead plant material in the compost heap and biogas generator does not decay completely.

Explain why a farmer might spread the remaining dead plant material onto his fields.

[2 marks]
