Q1. (June 2018)

Which process in the carbon cycle **takes in** carbon dioxide from the air?

A Combustion

B Decomposition

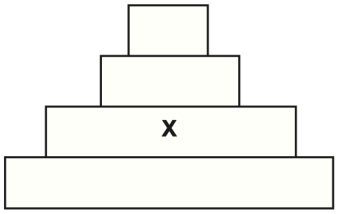
C Photosynthesis

D Respiration

Your answer ☐ **[1]**

Q2. (June 2018)

The diagram shows a pyramid of biomass.



Which trophic level is **X**?

A Primary consumers

B Producers

C Secondary consumers

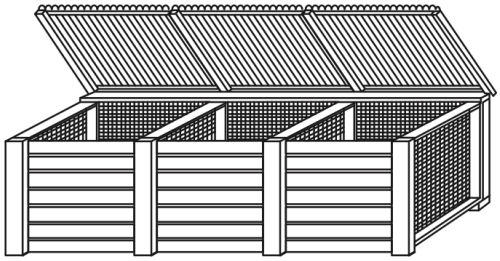
D Tertiary consumers

Your answer ☐ **[1]**

Q3. (June 2018)

A gardener buys a composter to decay plant material as quickly as possible.

The composter has three sections.



Section **A** Section **B** Section **C**

She designs an experiment to see if watering makes the plant material decay faster.

She waters:

- Section **A** once a week
- Section **B** once a month
- Section **C** is not watered.

a)

The gardener wants valid results. Explain **one** factor that the gardener should keep constant.

.....

.....

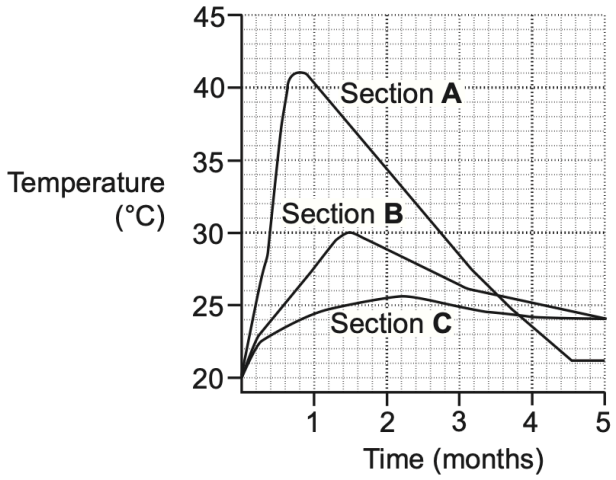
..... **[2]**

b)

The gardener measures the temperature in each section for five months.

She knows that heat is given off when plant material decays.

The graph shows her results.



i)

(i) Write down **two** differences between the change in temperature in Section **A** and the change in temperature in Section **C**.

1 .....

.....

2 .....

.....

[2]

ii)

(ii) The gardener decides that she should water all sections every week.

Explain why she decides this.

.....

..... **[1]**

c)

Each section of the composter has holes in it to let oxygen in.

Explain why this helps the material to decay.

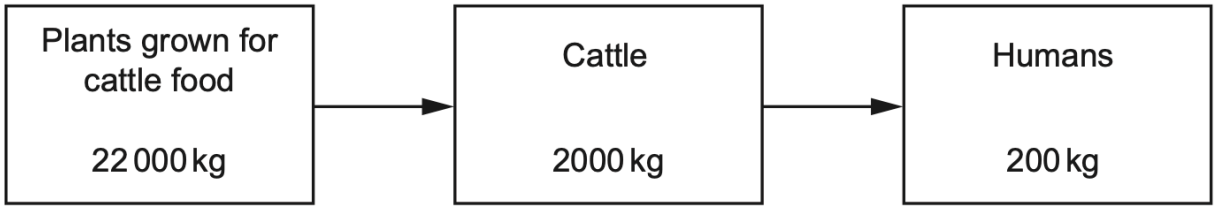
.....

.....

..... **[2]**

Q4. (June 2018)

The diagram shows the flow of biomass through an agricultural food chain.



a)

i)

(i) Calculate how much biomass is lost between the plants and humans.

Answer = ... kg **[1]**

ii)

(ii) One way biomass is lost from the food chain is by insects eating the leaves of plants.

Write down **one** other way that biomass is lost from the food chain.

..... **[1]**

b)

The plants grown for cattle food often have their leaves eaten by insects.

Scientists have produced genetically modified (GM) plants that make insecticide in their leaves.

i)

(i)* Explain why these GM plants would make more biomass available to humans.

In your answer use the diagram of the agricultural food chain and ideas about photosynthesis.

.....

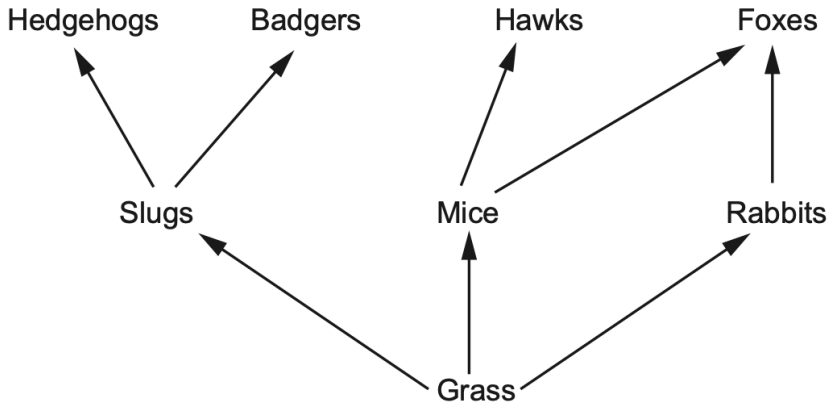
.....

[6]

Q5. (June 2018)

a)

The diagram shows part of a food web from a grassland.



How many secondary consumers are shown in this food web?

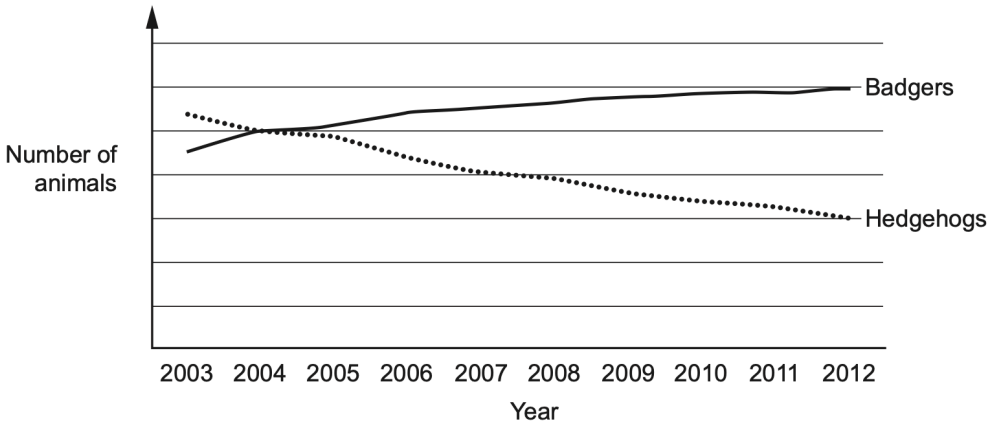
..... **[1]**

b)

(b) A survey was set up to see if the number of badgers and hedgehogs has changed in the UK.

The number of badgers and hedgehogs were counted in different areas each year from 2003 to 2012.

The graph shows the results.



Use the food web to suggest an explanation for the change in the number of hedgehogs shown in the graph.

.....

.....

..... **[2]**

c)

Hedgehogs are covered in small spines.

When they are frightened they often roll up into a ball and keep still.

In country areas, where badgers live, this is an advantage to the hedgehogs.

In cities, where there are many roads, this is a disadvantage.

Explain these two conclusions.

.....

.....

..... **[2]**

Q6. (June 2018)

A student investigates plants growing underneath a tree.

He lays out a tape measure on the ground, starting at the tree. He then places a quadrat on the ground.

He measures the percentage of the ground in the quadrat that is covered by plants. He repeats this every metre away from the tree.

The table shows his results.

Distance from the tree (m)	Percentage of ground covered by plants (%)
1	10
2	15
3	18
4	22
5	50
6	58
7	62
8	64

The student thinks that shade from the tree is affecting the plants.

Explain how the student's results show this.

.....

.....

.....

.....

.....

..... **[4]**

Q7. (June 2019)

Which of these is an **abiotic** factor that can affect organisms?

A Food availability

B Light intensity

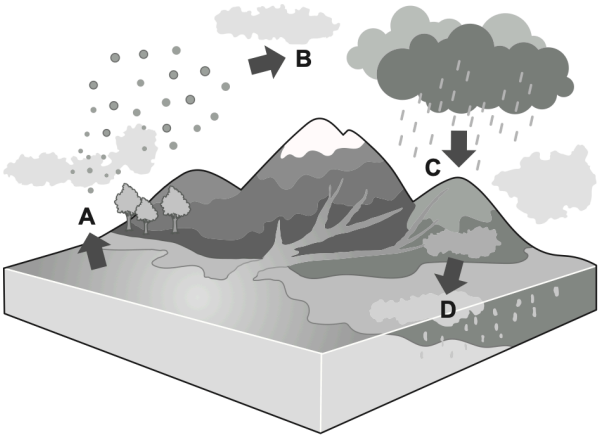
C Pathogens

D Predators

Your answer ☐ **[1]**

Q8. (June 2019)

The diagram shows the water cycle.



Which label, **A**, **B**, **C** or **D**, represents evaporation?

Your answer ☐ **[1]**

Q9. (June 2019)

Which relationship describes an organism living on an animal and harming it?

A Decomposition

B Mutualism

C Parasitism

D Predation

Your answer ☐ **[1]**

Q10. (June 2019)

Most food chains only have a maximum of five trophic levels.

Explain why.

A Organisms always get larger at higher trophic levels.

B Energy is lost at each trophic level.

C It is more energy efficient to eat meat than plant material.

D The number of organisms feeding always increases at higher trophic levels.

Your answer ☐ **[1]**

Q11. (June 2019)

A salt marsh is a large, muddy area of land where a river joins the sea.

When the tide comes in, the salt marsh gets covered with seawater.

Suggest **one** reason why salt marshes are difficult places for plants to grow.

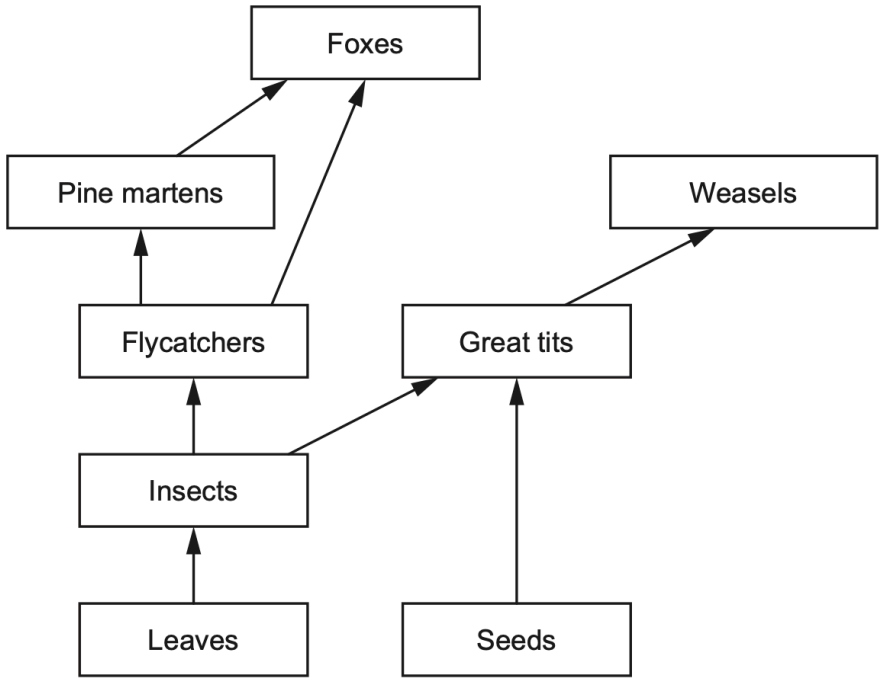
.....

..... **[1]**

Q12. (June 2019)

a)

The diagram shows part of a food web from a woodland.



i)

Great tits are described as both primary consumers and secondary consumers.

Explain why.

.....

.....

.....

..... **[2]**

ii)

Foxes are described as both predators and competitors of pine martens.

Explain why.

.....

.....

.....

..... **[2]**

iii)

Which organism in the food web occupies the second trophic level?

..... **[1]**

b)

Great tits and flycatchers are both birds.

In a conservation project, scientists have built boxes for the birds to nest in. The scientists fixed the boxes on trees at different heights.

The table shows how many birds of each type used the boxes for nesting.

	Number of bird boxes used	
Height of bird box above the ground (m)	**By great tits**	**By flycatchers**
1	1	6
2	7	5
4	10	6

The food web shows:

- Weasels feed on great tits
- Pine martens feed on flycatchers.

Weasels live on the ground but pine martens live in trees.

How can this be used to explain the results of the scientists' investigation?

.....

.....

.....

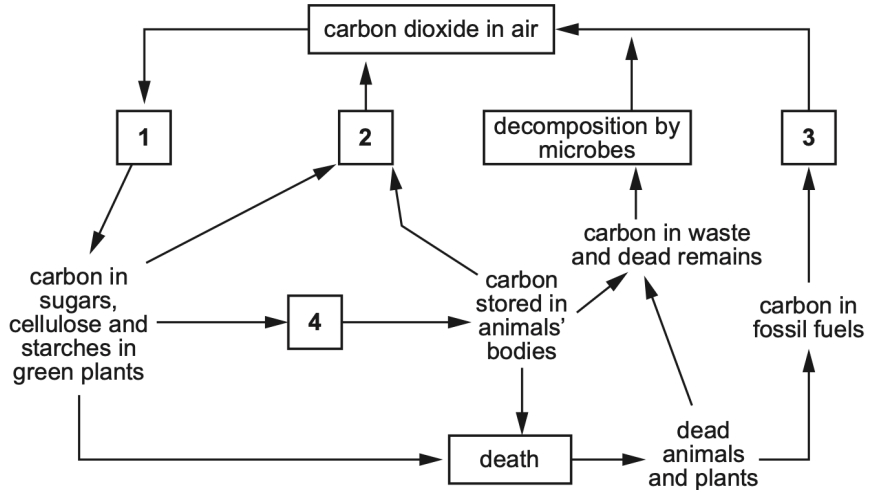
.....

..... **[3]**

Q13. (June 2019)

a)

The diagram shows the carbon cycle.



Boxes **1–4** represent different processes in the carbon cycle.

Draw lines to link boxes 1–4 to the correct name for the process in the carbon cycle.

1	**Combustion**
2	**Eating**
3	**Photosynthesis**
4	**Respiration**

[2]

b)

Scientists investigated if crops can be grown on the planet Mars.

They used a soil that was similar to the soil found on Mars. The soil contained some minerals but no living organisms.

i)

The scientists managed to grow crops in the soil. However on Mars, the minerals in the soil would soon run out.

Explain why.

.....

.....

..... **[2]**

ii)

Living organisms could be added to the soil but there is no air on Mars. The plants would need to be grown in an enclosed structure.

At first, air would need to be added, but after a while the organisms in the soil and the plants would supply each other with the gases they need.

Explain how this would happen.

.....

.....

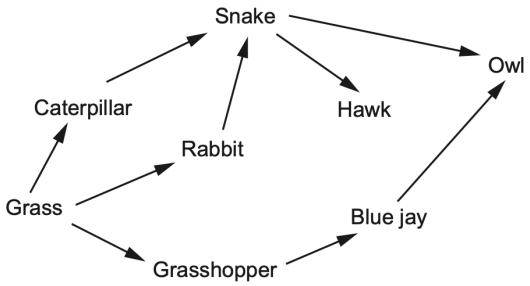
.....

.....

..... **[2]**

Q14. (June 2022)

The diagram shows a food web.



Which organisms are secondary consumers?

A Blue jays and snakes

B Caterpillars and rabbits

C Hawks and owls

D Rabbits and hawks

Your answer ☐ **[1]**

Q15. (June 2022)

Which of these is a **biotic** factor that can affect organisms?

A Light

B pH of soil

C Predators

D Temperature

Your answer ☐ **[1]**

Q16. (June 2022)

Which process causes the loss of biomass from a food web?

A Growth

B Photosynthesis

C Predation

D Respiration

Your answer ☐ **[1]**

Q17. (June 2022)

Which is the order for the levels of organisation in an ecosystem, starting with the **smallest**?

A community ⟶ population ⟶ organism ⟶ ecosystem

B ecosystem ⟶ population ⟶ community ⟶ organism

C organism ⟶ population ⟶ community ⟶ ecosystem

D population ⟶ organism ⟶ ecosystem ⟶ community

Your answer ☐ **[1]**

Q18. (June 2022)

The diagram shows the energy trapped as biomass at each stage of a food chain.

grass	⟶	grasshopper	⟶	mouse	⟶	hawk
10 000 J		1000 J		200 J		40 J

What is the percentage efficiency in the transfer of energy between the grasshopper and the mouse?

A 0.2%

B 8%

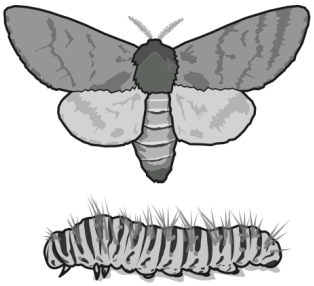
C 10%

D 20%

Your answer ☐ **[1]**

Q19. (June 2022)

Pine processionary moths lay eggs that develop into caterpillars, as shown in the diagram.



Moth

Caterpillar

The caterpillars eat pine trees.
The caterpillars are eaten by birds such as cuckoos. The caterpillars are also parasitised by fungi.

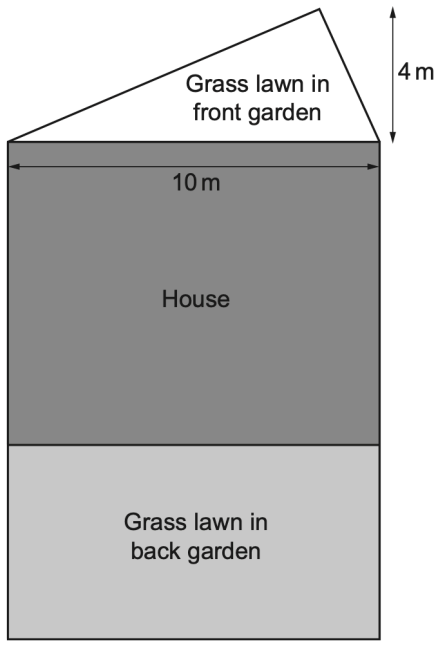
Draw a food web to show these feeding relationships.

[2]

Q20. (June 2022)

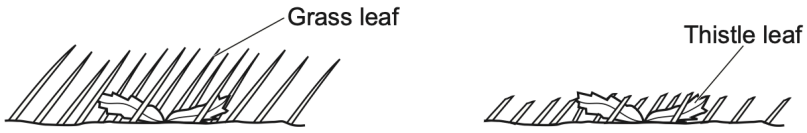
A gardener grows thistle plants as weeds in his grass lawns.
He wants to see if thistle plants grow better in the front garden than in the back garden.

The diagram shows a plan of the grass lawns in each garden.



The gardener cuts the grass more often in the back garden. He thinks thistles grow better when he mows the grass more often.

The diagram shows the grass lawns before and after he has mown them.



Before mowing **After mowing**

Explain how cutting the grass more often can affect how well the thistles grow.

Use ideas about competition and photosynthesis.

.....

.....

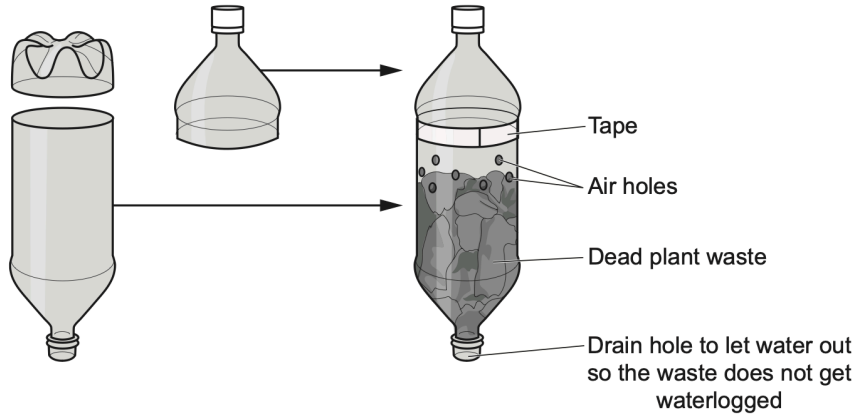
.....

.....

..... **[3]**

Q21. (June 2022)

Some students investigate decomposition of dead plant waste.
They make a composter from two plastic bottles.



a)

Why do the students make air holes in the bottle?
Tick (✓) **one** box.

To allow heat into the bottle. ☐

To allow oxygen gas into the bottle. ☐

To prevent the build-up of nitrogen gas in the bottle. ☐

So that carbon dioxide gas can enter. ☐

[1]

b)

The students want to see if the number of air holes in the bottles affects the rate of decomposition.

- They set up bottles with different numbers of air holes.
- They then measure the mass of the bottle and compost at the start and after four weeks.

The table shows their results.

	Mass of bottles and plant waste (g)	
Number of air holes	**At the start**	**After 4 weeks**
2	300	270
4	300	250
8	300	240
16	300	235

i)

Calculate the loss in mass **per week** of the bottle and plant waste with 16 air holes.

Give your answer to **3** significant figures.

Loss in mass = ... grams/week **[3]**

ii)

Describe the effect of the number of air holes on the rate of decomposition of the plant waste.

.....

.....

.....

..... **[2]**

iii)

The students checked that all the bottles and plant waste had a mass of 300 g at the start of the experiment.

Explain why this helps the students to analyse the results.

.....

..... **[1]**

iv)

What is the independent variable in the students' investigation?

..... **[1]**

v)

The students notice that during the experiment, water drips through the drain hole at the bottom of the apparatus on to the floor.

Explain why this can produce inaccurate results **and** how the students can change their method to correct this.

.....

.....

.....

..... **[2]**

Q22. (June 2023)

Which process in the carbon cycle **decreases** the amount of carbon dioxide in the air?

A Combustion

B Decomposition

C Photosynthesis

D Respiration

Your answer [ ] **[1]**

Q23. (June 2023)

Which of these is a **biotic** factor that can affect the growth of plants?

A Carbon dioxide levels

B Light availability

C Mineral content of the soil

D Number of primary consumers

Your answer [ ] **[1]**

Q24. (June 2023)

Which group will have the **most** organisms in any ecosystem?

A Community

B Population

C Species

D Trophic level

Your answer [ ] **[1]**

Q25. (June 2023)

Biomass is lost as it passes through a food chain.

Which processes are responsible for this loss in biomass?

A Egestion, excretion and respiration

B Egestion, transpiration and respiration

C Excretion, transpiration and respiration

D Photosynthesis, egestion and excretion

Your answer [ ] **[1]**

Q26. (June 2023)

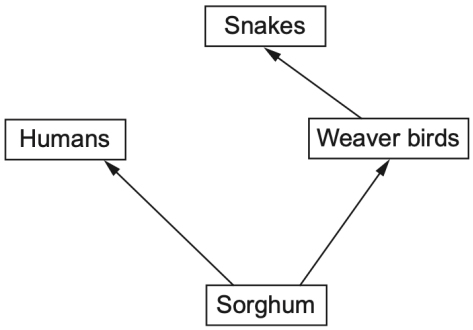
Sorghum is a crop plant grown in Africa for its seeds as shown in **Fig. 16.1**.

Fig. 16.1

a)

Fig. 16.2 shows a food web containing sorghum.

Fig. 16.2



Write down the trophic level for each of these organisms in the food web.

Use the words from the list.

primary consumers	**producers**	**secondary consumers**

Sorghum .....

Snakes .....

[2]

b)

Weaver birds are a major problem for farmers who grow sorghum.

One weaver bird can eat 15 g of sorghum seeds in a day.
A large colony of weaver birds has 5 000 000 birds.

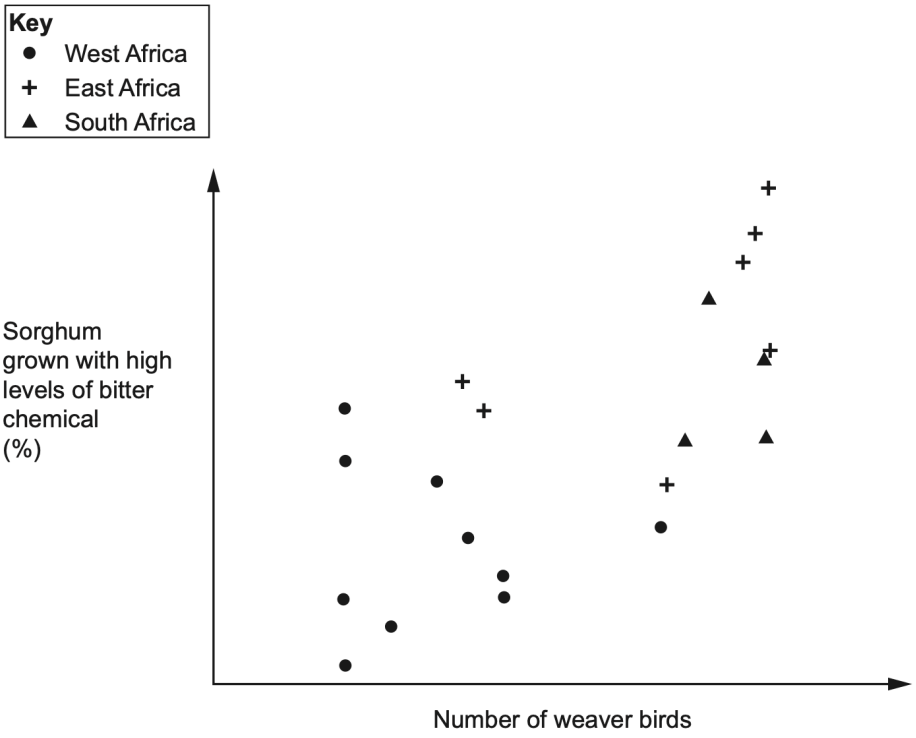
Calculate the mass of seeds in **kilograms** that this colony eats in a day.

Mass of seeds = ... kg **[2]**

c)

Scientists recorded the percentage of sorghum grown with high levels of bitter chemical in different areas of Africa. They also recorded the number of weaver birds living in the same areas.

The graph shows the data they collected.



In some areas, there are low numbers of weaver birds.

i)

Which area of Africa, west, east or south, has the **least** number of weaver birds that eat sorghum?

..... **[1]**

ii)

Complete the sentence about the graph.

Put a (ring) around the correct option.

In the areas with low numbers of weaver birds, farmers choose to grow

a lower / a higher / the same percentage of sorghum with high levels of

bitter chemicals. **[1]**

iii)

Give a reason why the farmers make this choice.

.....

..... **[1]**

Q27. (June 2023)

Buddleia, a pest or a friend?

Many people grow buddleia bushes in their gardens.

Buddleia flowers attract butterflies that feed on nectar. Birds and bats feed on butterflies. Foxes and badgers can live under the cover of the bushes.

Buddleia bushes spread and grow very quickly. In some areas this has caused the numbers of other plants to decrease.

In these areas, scientists have seen large numbers of butterflies. However, they only see the more common types of butterflies and not rare ones.

Some scientists say buddleia are ‘pests’ but others say they are ‘friends’.

Use information from the passage to explain these different opinions about buddleia.

In your answer use ideas about:

- interdependence
- competition
- biodiversity.

.....

.....

..... **[6]**

Q27. (June 2023)

a)

Complete each sentence about decomposition.

Decomposition is caused by microorganisms such as ..... .

The microorganisms use the process of ..... to release the energy in dead organisms.

Decomposition also allows minerals to be ..... in nature for plants to use.

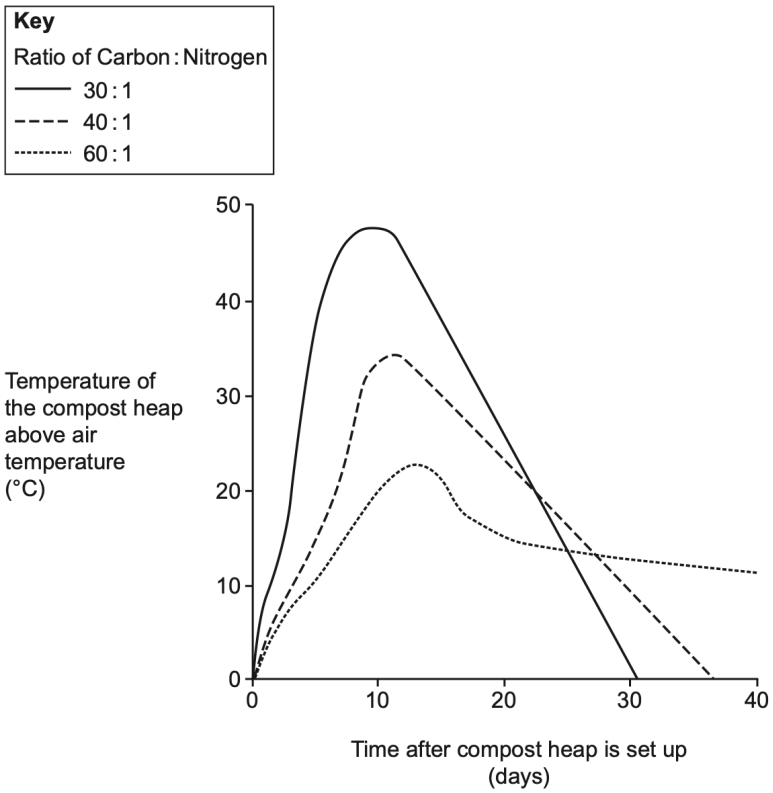
[3]

b)

Some students investigate plant decomposition.
They put three different plant wastes into compost heaps.
Each type of plant waste contains different ratios of carbon to nitrogen.

They measure the rate of decomposition by measuring the temperature in the compost.

The graph shows their results.



i)

The pupils used the temperature of the compost heap as a measure of the rate of decomposition.

Which statement explains why they could do this?

Tick (✓) **one** box.

Carbon dioxide contains more energy than oxygen. ☐

Decomposition involves an endothermic reaction. ☐

Microorganisms give off heat when they decompose waste. ☐

Mineral salts will increase the temperature of the compost. ☐

[1]

ii)

Which statement describes the results of the investigation?

Tick (✓) **one** box.

High levels of carbon results in faster decomposition.	☐
If the carbon : nitrogen ratio is higher, then decomposition is faster.	☐
Low levels of nitrogen result in faster decomposition.	☐
The higher the nitrogen content compared to carbon, the faster the rate of decomposition.	☐

[1]

iii)

Give **one** abiotic factor that the students should keep constant in their experiment.

..... **[1]**

c)

The table shows the mass of carbon and nitrogen in different plant materials.

Plant material	**Mass of carbon per kg (g)**	**Mass of nitrogen per kg (g)**
Fruit waste	14	0.350
Horse manure	18	0.600
Straw	9	0.015

Which plant material would decompose the **fastest**?

Explain your answer using calculations and the graph in **(b)**.

Plant material .....

Reason .....

.....

.....

[3]

Q28. (June 2024)

Which process in the water cycle involves water moving from clouds to the ground?

A Evaporation

B Precipitation

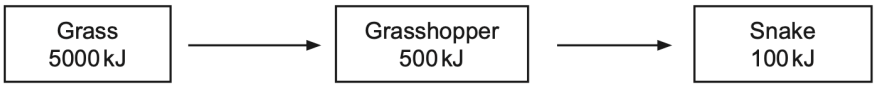
C Run off

D Transpiration

Your answer ☐ **[1]**

Q29. (June 2024)

The diagram shows a food chain.



How much energy is lost between the producer and primary consumer?

A 400 kJ

B 4400 kJ

C 4500 kJ

D 4900 kJ

Your answer ☐ **[1]**

Q30. (June 2024)

What is the definition of a **population**?

A All the communities that live in a habitat.

B All the different species living in a habitat.

C All the members of one species that live in a habitat.

D All the organisms that live in a habitat.

Your answer ☐ **[1]**

Q31. (June 2024)

Which row shows correct abiotic and biotic factors?

	Abiotic	Biotic
A	food	light intensity
B	food	predators
C	pH of soil	predators
D	temperature	light intensity

Your answer ☐ **[1]**

Q32. (June 2024)

Mistletoe is a green plant that can often be seen growing high in a tree in winter.

Mistletoe can make its own food but very slowly.

Therefore, it needs to take some food from the tree that it grows on. The tree does not benefit.

Which term describes the mistletoe's relationship with the tree?

Put a (ring) around the correct option.

mutualistic partner **parasite** **predator** **prey**

[1]

Q33. (June 2024)

Microorganisms are found in milk.

These microorganisms make enzymes that can cause milk to decompose.

a)

Microorganisms are found in milk.

These microorganisms make enzymes that can cause milk to decompose.

State the name of **one** type of microorganism that can cause milk to decompose.

..... **[1]**

b)

Some students design an investigation to see how fast a sample of milk decomposes.

This is the method the students use:

- Pour 20 cm^3 of milk into a beaker.
- Keep the beaker at 25 °C.
- Measure the pH of the milk at different times over 72 hours.

i)

Suggest **one** piece of apparatus the students could use to keep the beaker of milk at a constant temperature.

..... **[1]**

ii)

When milk decomposes, sugars in the milk are turned into lactic acid.

To show how fast the milk decomposes, the students measure the time it takes for the pH to change.

Which term describes the time it takes for the pH to change?

Tick (✓) **one** box.

Control variable ☐

Dependent variable ☐

Independent variable ☐

[1]

c)

The students repeated the experiment at two other temperatures.

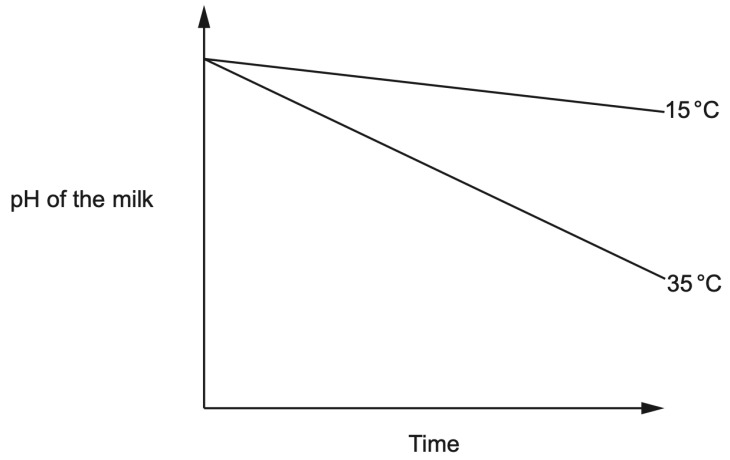
The table shows the results.

	pH of milk				
Temperature (°C)	**At the start**	**After 12 hours**	**After 24 hours**	**After 48 hours**	**After 72 hours**
15	6.5	6.4	6.3	6.1	5.8
25	6.5	6.3	6.2	5.9	5.5
35	6.5	6.3	6.1	5.5	4.9

i)

The graph shows the pattern of the students' results for 15 °C and 35 °C.

Draw a line on the graph to show the pattern at 25 °C.



[1]

ii)

Complete the sentences to explain the difference between the students' results at 15 °C and 35 °C.

Milk decomposes ..... at 35 °C.

Increasing the temperature increases the ..... of the molecules.

This causes more frequent ..... between enzymes and the

..... molecules.

[4]

iii)

The students want to find the temperature at which the enzymes from the microorganisms change shape and stop functioning (denature).

How could they extend their experiment to find this out?

Tick (✓) **two** boxes.

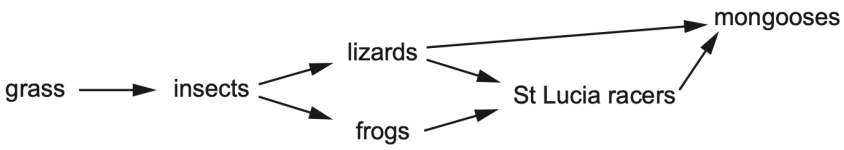
- Repeat at higher temperatures. ☐
- Repeat at lower temperatures. ☐
- Repeat at more temperatures between 15 °C and 35 °C. ☐
- Identify the lowest pH reached. ☐
- Identify the temperature where pH decreases the most. ☐
- Identify the temperature where pH does not decrease. ☐

[2]

Q34. (June 2024)

The St Lucia racer is the rarest snake in the world.

The snake lives on the island of St Lucia. The diagram shows a food web from St Lucia.



a)

How many secondary consumers are in this food web?

..... **[1]**

b)

Mongooses are described as both **predators** and **competitors** of St Lucia racers.

Explain why.

.....

.....

.....

..... **[2]**

c)

Biomass is lost as it passes through this food web.

Put a (ring) around **two** ways that biomass is lost from this food web.

egestion **growth** **photosynthesis** **respiration**

[1]

d)

The mongooses soon spread throughout St Lucia.

- Female mongooses can breed 3 times each year and produce 3 babies each time.
- The St Lucia racer lays about 5 eggs each year.

Explain why the mongooses almost made the snake extinct.

.....

..... **[1]**

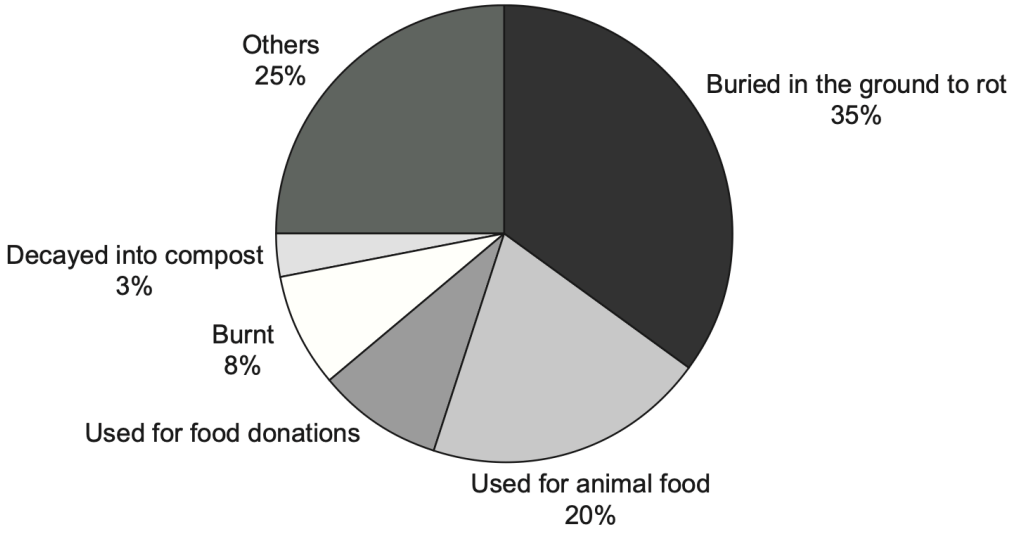
Q35. (June 2025)

Human populations need large amounts of food to survive.

In some countries, more food is made and bought than is eaten.

This results in a food surplus with some food being wasted.

The pie chart shows how this surplus food is reused or disposed of in America.



Two of the methods of food disposal named in the pie chart use microorganisms.

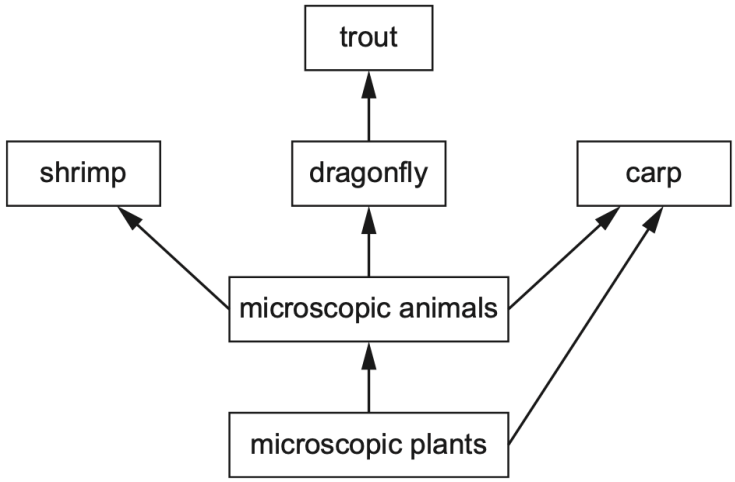
Identify these **two** methods.

..... and .....

[2]

Q36. (June 2025)

The diagram shows a food web from a lake in America.



a)

Name the **producer** in this food web.

..... **[1]**

b)

At which two trophic levels are the carp feeding?

Tick (✓) **two** boxes.

Primary consumer ☐

Secondary consumer ☐

Tertiary consumer ☐

[1]

c)

Carp are large fish that have been introduced into America from Asia.
Their numbers in lakes are rapidly increasing.

Which reason explains why the number of carp are increasing so rapidly?

Use the food web.

Tick (✓) **one** box.

They can act as parasites. ☐

They can prey on large animals. ☐

They have no predators. ☐

[1]

d)

Carp feed at the bottom of the lakes.

This has two main effects:

- mud is stirred up making the water cloudy
- minerals are released into the water from the mud.

Explain why these two effects might increase or decrease the numbers of microscopic plants in the lakes.

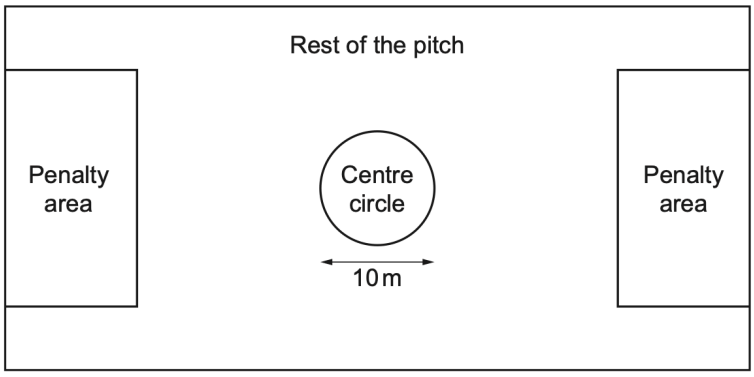
.....

.....

..... **[6]**

Q37. (June 2025)

Some students investigate the number of dandelion plants growing in three different parts of a football pitch.



The students write a conclusion for their experiment.

Complete the students' conclusion.

Use words from the list.

community	**compete**	**differently**	**efficiently**	**equally**
habitat	**mutate**	**population**	**respire**	

The football pitch contains a ..... of different plant species, mainly grass and dandelions.

The part of the pitch that has the most players running on it has the most dandelions.

This is because it is more difficult for plants to grow there.

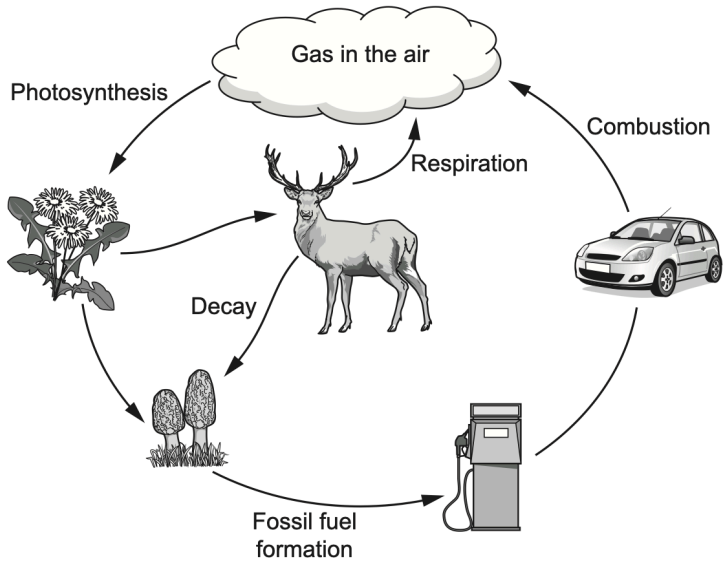
The dandelions successfully ..... with the grass in these areas.

We can only make this conclusion if abiotic factors affect each area ..... .

[3]

Q38. (Nov 2020)

The diagram shows part of a cycle in an ecosystem.



What is the name of the cycle shown in the diagram?

A Carbon cycle

B Hydrogen cycle

C Nitrogen cycle

D Sulfur cycle

Your answer ☐ **[1]**

Q39. (Nov 2020)

Goldfish are a species of fish.

What name is given to all the goldfish living in a pond?

A A community

B An ecosystem

C A habitat

D A population

Your answer ☐ **[1]**

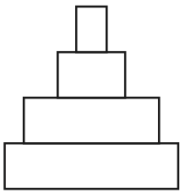
Q40. (Nov 2020)

This is a food chain for organisms in a forest.

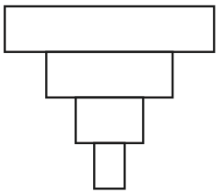
Oak tree ⟶ Greenfly ⟶ Ladybird ⟶ Blackbird

Which is the correct shape for a pyramid of **biomass** for this food chain?

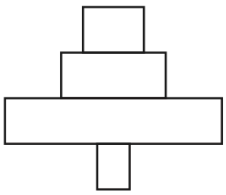
A



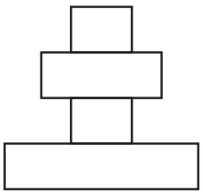
B



C



D



Your answer [1]

Q41. (Nov 2020)

Fig. 16.1 shows a plant that grows in South America called stevia.

Fig. 16.1

a)

Fig. 16.2 shows a food web containing stevia.

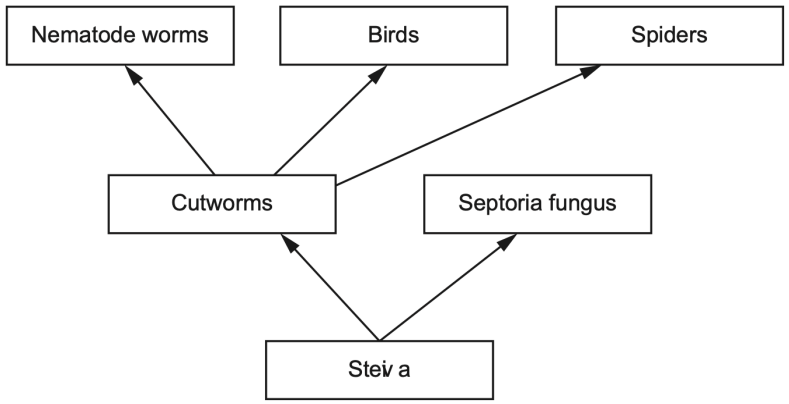


Fig. 16.2

i)

Write down the number of trophic levels in this food web.

..... **[1]**

ii)

What is the source of energy for this food web?

..... **[1]**

iii)

Septoria fungus is a parasite of stevia.

Explain what is meant by the term **parasite**.

.....

.....

..... **[2]**

Q42. (Nov 2020)

Gardeners use dead plant material to make compost. They add this compost to soil where they are growing plants.

a)

What do plant roots get from compost in the soil?

Put a (ring) around the correct answer.

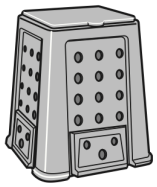
carbon dioxide **minerals** **nitrogen gas** **oxygen gas**

[1]

b)

Compost can be made in a composting bin. In the bin **aerobic** bacteria turn dead plant material into compost.

The drawing shows a composting bin.



Explain why the composting bin needs holes in it.

.....

.....

..... **[2]**

c)

A new way of making compost is called bokashi. In this process the compost is made **anaerobically** in a different type of composter.

Scientists compare the normal methods of making compost with bokashi.

This is their method:

- Take one large pile of dead plant material
- Divide the material into two samples of equal mass
- Place one sample into the normal composter and place one sample into the bokashi composter
- Measure the temperature in each composter every 10 days
- After 40 days, measure the mass of the compost.

Why did the scientists put the same mass of compost in each composter?

Tick (✓) **one** box.

To allow valid comparisons of the results. ☐

To decrease the temperature. ☐

To make the measurements more accurate. ☐

To make the results repeatable. ☐

[1]

d)

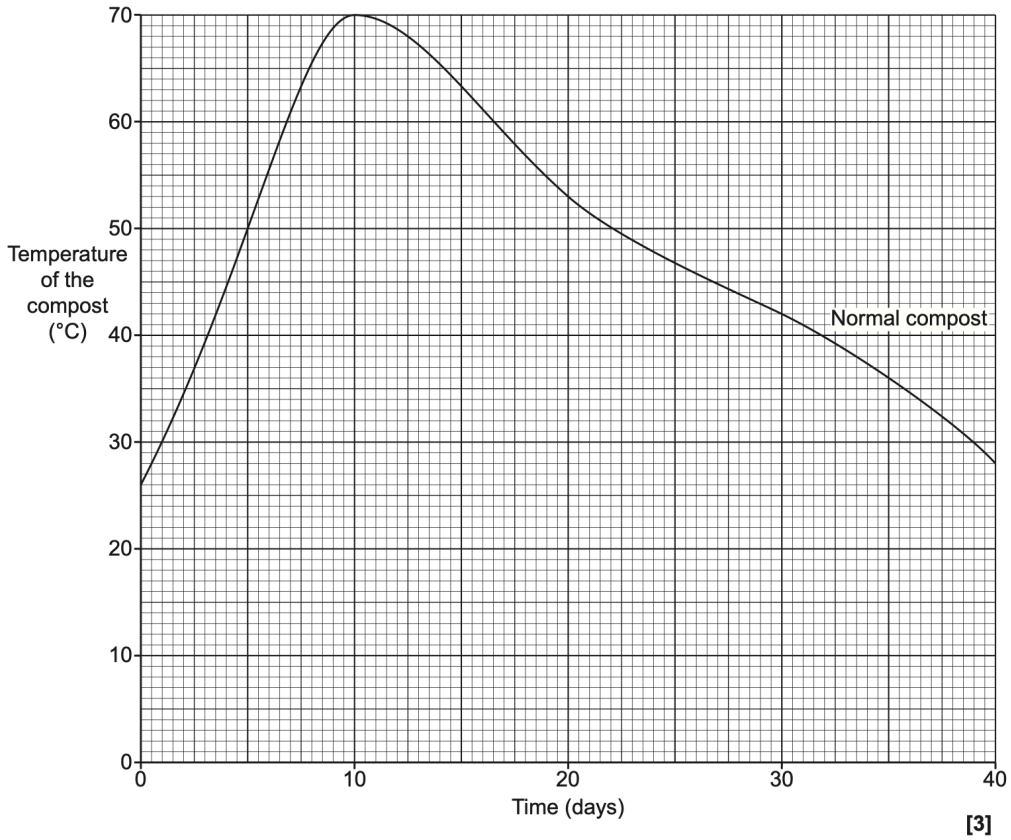
Table 20.1 shows the scientists' temperature measurements.

	Temperature of the compost (°C)	
Time (days)	**Normal compost**	**Bokashi compost**
0	26	26
10	70	27
20	53	29
30	42	31
40	28	28

i)

(i) The scientists' results for the normal compost are plotted on the grid.

Complete the graph by plotting the results for the **bokashi** compost and draw a curve of best fit.



[3]

ii)

Describe the change in the temperature of the **normal** compost during the investigation.

.....

.....

.....

..... **[2]**

iii)

Use data from **Table 20.1** to calculate the difference between the maximum temperature of the normal compost and the maximum temperature of the bokashi compost.

Difference = ... °C **[2]**

iv)

Which **two** statements explain this difference in temperature between the two types of compost?

Tick (✓) **two** boxes.

Both types of compost are made by aerobic respiration.	☐
Normal compost is made by aerobic respiration.	☐
Normal compost is made by anaerobic respiration.	☐
Aerobic respiration and anaerobic respiration release the same amount of energy.	☐
Aerobic respiration releases more energy than anaerobic respiration.	☐
Aerobic respiration releases less energy than anaerobic respiration.	☐

[2]

e)

Table 20.2 shows the scientists' results for the mass of the compost.

	Normal compost	**Bokashi compost**
Mass at start (kg)	1500	1500
Mass after 40 days (kg)	760	1200

Table 20.2

i)

The mass of the normal compost has decreased by 19 kg per day.

Calculate the decrease in mass of the bokashi compost per day.

Give your answer to the nearest **whole** number.

Decrease = ...kg per day **[3]**

ii)

Carbon dioxide is given off in the making of the compost. This causes most of the decrease in mass.

Scientists think that the bokashi method of composting might be better for the environment.

Use your answer from part **(e)(i)** to justify the scientists' conclusion.

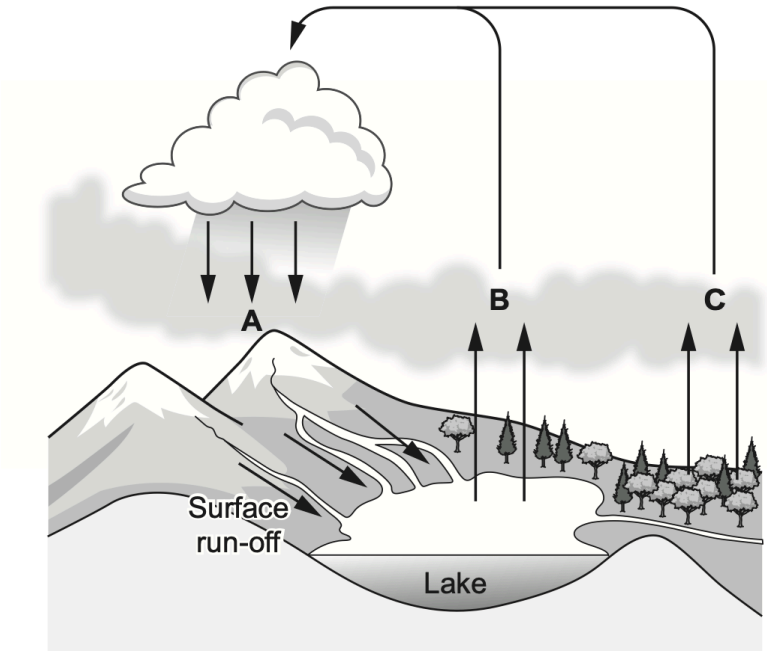
.....

.....

..... **[1]**

Q43. (Nov 2020)

Fig. 22.1 shows the water cycle occurring in a lake.



a)

(a) Draw a line to the correct name for the three processes labelled **A**, **B** and **C** in **Fig. 22.1**.

A	Evaporation
	Photosynthesis
	Precipitation
B	Respiration
	Translocation
C	Transpiration

[3]

b)

Surface run-off water passes through soil and back into the lake.

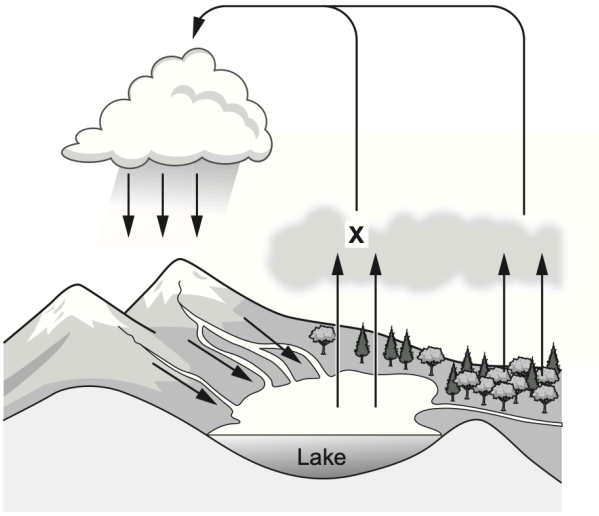
Write down **one** reason why surface run-off water is important to organisms living in the lake.

.....

..... **[1]**

Q44. (Nov 2021)

The diagram shows the water cycle.



Which process is **X**?

A Evaporation

B Precipitation

C Run-off

D Transpiration

Your answer ☐ **[1]**

Q45. (Nov 2021)

Which process causes the **loss** of biomass from food chains?

A Growth

B Photosynthesis

C Predation

D Respiration

Your answer ☐ **[1]**

Q46. (Nov 2021)

Tigers hunt and kill deer to eat.

Which is the correct description of this relationship?

A Competition

B Mutualism

C Parasitism

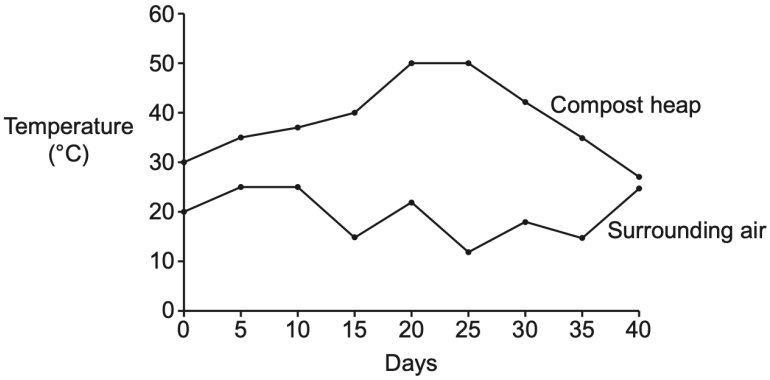
D Predation

Your answer [ ] **[1]**

Q47. (Nov 2021)

A student measured the temperature in a compost heap and the temperature of the surrounding air.

The graph shows the results.



Which is an explanation of the student's results?

A The compost heap is cooler due to the photosynthesis of microorganisms.

B The compost heap is cooler due to the respiration of microorganisms.

C The compost heap is warmer due to the photosynthesis of microorganisms.

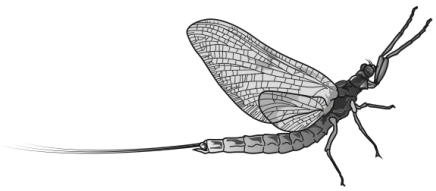
D The compost heap is warmer due to the respiration of microorganisms.

Your answer [ ] **[1]**

Q48. (Nov 2021)

The drawings show two types of insect called the Blandford fly and the mayfly.

Blandford fly



Mayfly

a)

The young of both Blandford flies and mayflies live in rivers and eat algae.

Large fish called trout eat the young of both Blandford flies and mayflies.

i)

Complete the sentences about the river and the organisms.

You can use each word once, more than once, or not at all.

community **ecosystem** **habitat** **population**

The river is a ..... where organisms live.

All the trout in the river are a ..... .

[2]

ii)

Draw lines to connect each organism with its correct trophic level.

	Primary consumers
Mayfly	Producers
Trout	Secondary consumers
	Tertiary consumers

[2]

iii)

What process in algae produces food for the organisms in the river?

..... **[1]**

Q49. (Nov 2021)

Farmers' fields are usually surrounded by hedges. An example of this is shown in **Fig. 22.1**.

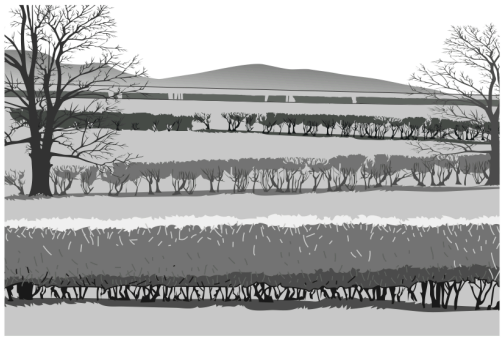


Fig. 22.1

Different plant species grow in the hedges. Scientists are studying hedges to find the number of different plant species.

Birds such as blackbirds make nests in hedges.

Fig. 22.3 shows a food web that occurs in a hedge next to a field of wheat.

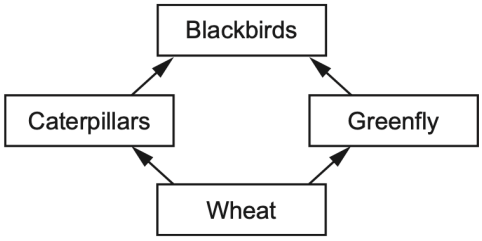


Fig. 22.3

Farmers are replanting hedges in their fields.

Use information from the food web in **Fig. 22.3** to explain how this could increase the yield of wheat.

.....

.....

..... **[2]**