Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/13**

Paper 1 Multiple Choice **May/June 2014**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

8553383965

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO **NOT** WRITE IN ANY BARCODES

There are **forty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.
Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages and **1** blank page.

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1 Why does the energy needed by a human increase during the first ten years of life?

A Coordination and responses improve.

B Energy is needed for gamete formation.

C The body is growing.

D The diet is more balanced.

2 Which features do animal cells share with plant cells?

	chloroplast	cytoplasm	nucleus
A	✓	✓	✓
B	✓	✗	✓
C	✗	✓	✓
D	✗	✗	✗

3 Which feature is characteristic of both annelids and arthropods?

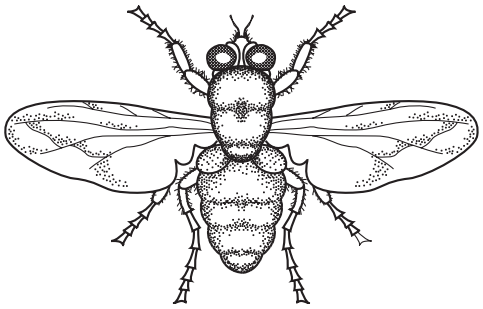
A compound eyes

B jointed limbs

C segmented bodies

D wings

4 The diagram shows an animal.



Use the key to identify the animal.

1 wings present ..... go to 2

wings absent ..... go to 3

2 one pair of wings visible ..... **A**

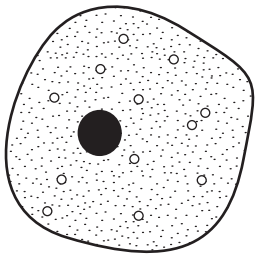
two pairs of wings visible ..... **B**

3 three pairs of legs ..... **C**

four pairs of legs ..... **D**

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5 The diagram shows a cell.



Which structure is **not** present?

A cell membrane

B cell wall

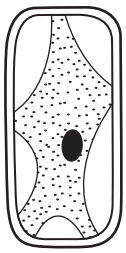
C cytoplasm

D nucleus

6 Which pair of statements about a plant cell is correct?

	outer surface of the cell	position of sap vacuole
A	cell membrane	outside the cytoplasm
B	cell membrane	surrounded by the cytoplasm
C	cell wall	outside the cytoplasm
D	cell wall	surrounded by the cytoplasm

7 The diagram shows a cell.



Which type of cell does the diagram show?

A an animal cell in a concentrated solution of salts

B an animal cell in pure water

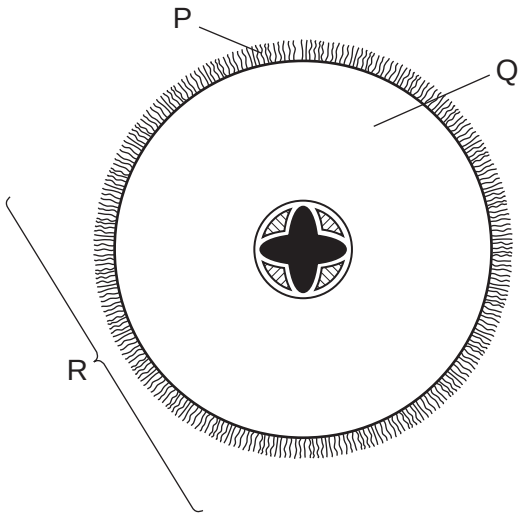
C a plant cell in a concentrated solution of salts

D a plant cell in pure water

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[Turn over

8 The diagram shows a section through a root.



What are the levels of organisation of the labelled structures?

	cell	organ	tissue
A	P	Q	R
B	P	R	Q
C	Q	R	P
D	R	Q	P

9 Two identical cylinders, 40 mm long, are cut from a potato. One (W) is placed in water and the other (X) is placed in a concentrated sugar solution.

What are the lengths of the cylinders after two hours?

	length of cylinder / mm	
	W	X
A	38	40
B	38	42
C	40	42
D	42	38

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10 Which structures contain a cell nucleus?

	red blood cell	root hair cell	xylem vessel
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

✓ = nucleus

✗ = no nucleus

11 What is a characteristic of all catalysts?

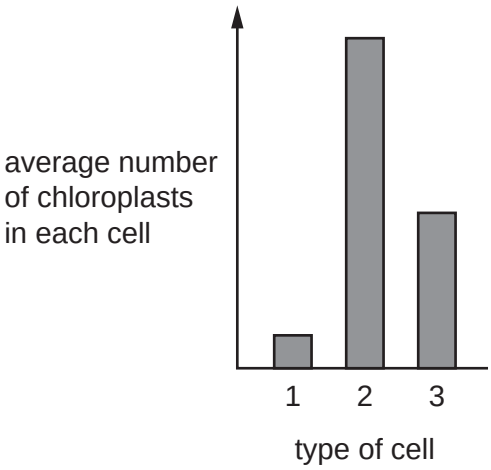
A They are broken down in the reaction.

B They are made of protein.

C They are not changed by the reaction.

D They do not change the rate of the reaction.

12 The bar chart shows the average number of chloroplasts in each of three different types of leaf cell.



What are the three types of cell?

	1	2	3
A	guard cell	palisade mesophyll cell	spongy mesophyll cell
B	palisade mesophyll cell	spongy mesophyll cell	guard cell
C	spongy mesophyll cell	guard cell	palisade mesophyll cell
D	spongy mesophyll cell	palisade mesophyll cell	guard cell

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13 Which blood vessel contains valves?

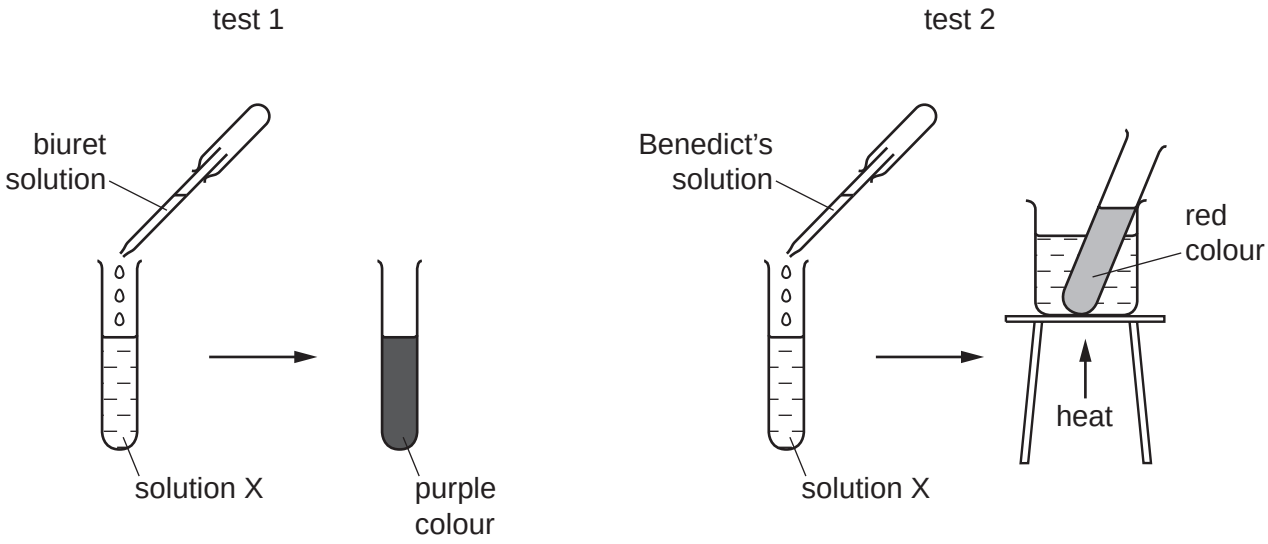
A arteriole

B capillary

C renal artery

D renal vein

14 The diagram shows two food tests carried out on solution X.



Which nutrients are present in solution X?

A protein and starch

B protein and sugar

C starch and fat

D starch and sugar

15 A person has their gall bladder removed.

Which statement is correct?

A They cannot eat carbohydrates.

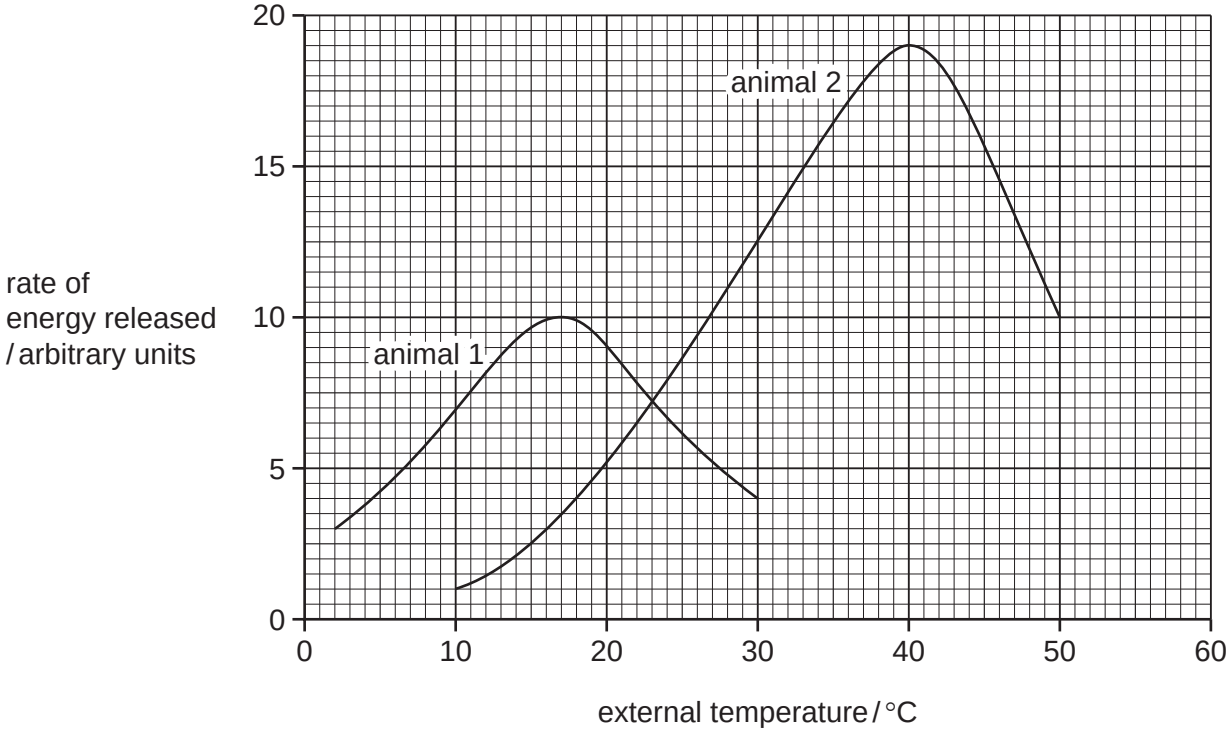
B They can eat fat only in small amounts.

C They can eat only liquid food.

D They must not eat more than one large meal a day.

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16 The graph shows the energy released by two animals through respiration as the external temperature changes.



Which conclusion can be drawn from the graph?

A Animals 1 and 2 release the least energy at 23 °C.

B Animal 2 always respires faster than animal 1.

C As the temperature rises, respiration always increases.

D The rate of respiration is the same for both animals at 23 °C.

17 When blood is flowing through a vena cava, which main blood vessel will it flow through next?

A hepatic portal vein

B hepatic vein

C pulmonary artery

D pulmonary vein

18 How does insulin move from the pancreas, where it is produced, to the cell where it acts?

A along nerves

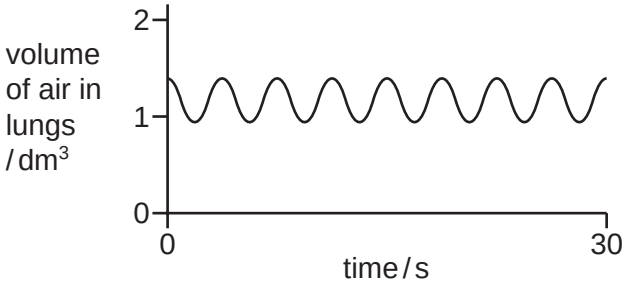
B in the blood

C through the digestive system

D through the pancreatic duct

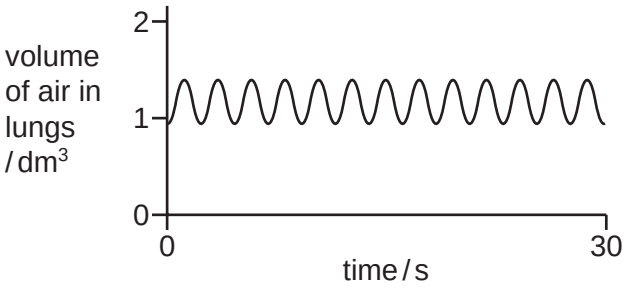
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19 The graph shows changes in the volume of air in the lungs of a person at rest, over a period of 30 seconds.

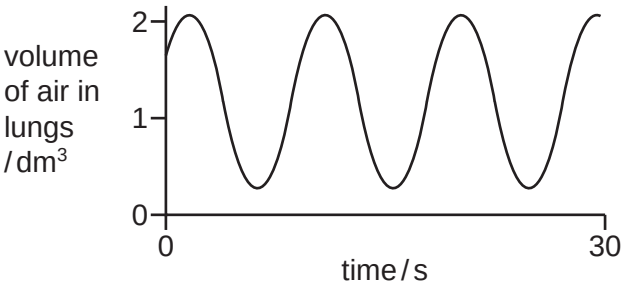


Which graph shows changes in the volume of air in the lungs of the same person immediately after they have done five minutes of vigorous exercise?

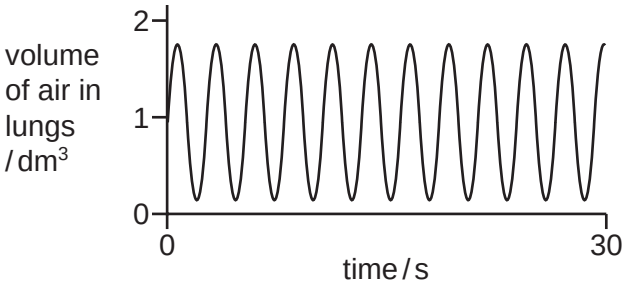
A



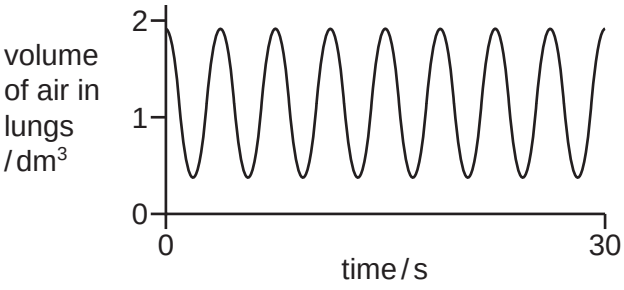
B



C



D



20 Which organs remove excretory products from the blood?

A bladder and liver

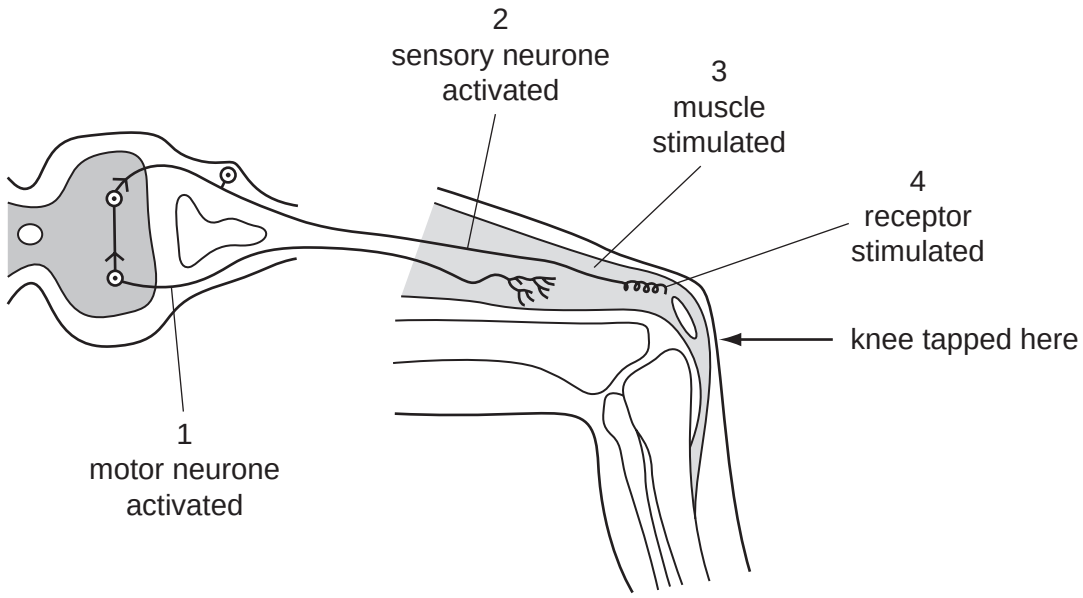
B bladder and lungs

C kidneys and bladder

D lungs and kidneys

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21 The diagram shows a simple reflex arc.



What is the correct order of events after the knee is tapped?

A 1 → 2 → 3 → 4

B 1 → 4 → 2 → 3

C 4 → 2 → 1 → 3

D 4 → 3 → 2 → 1

22 Four word equations are shown.

P carbon dioxide + water → glucose + oxygen

Q glucose + oxygen → carbon dioxide + water

R glucose → lactic acid

S glucose → alcohol + carbon dioxide

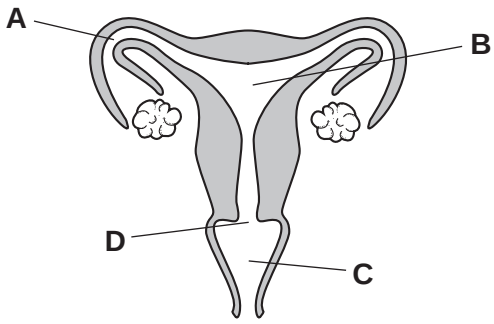
What are the equations for anaerobic respiration in humans and anaerobic respiration in yeast?

	anaerobic respiration in humans	anaerobic respiration in yeast
A	Q	P
B	Q	S
C	R	P
D	R	S

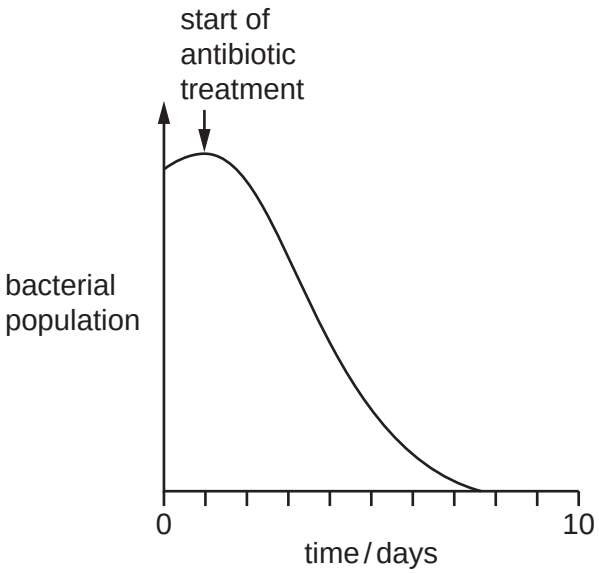
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23 The diagram shows different parts of the female reproductive organs where different methods of birth control can be used.

Where should a diaphragm be placed before intercourse if a couple do **not** want a baby?



24 The graph shows the effect of an antibiotic treatment on bacterial populations in the blood.



What conclusion can be drawn from the graph?

A Antibiotics are effective against viral and bacterial infections.

B Antibiotics cause reduction division in bacteria.

C Antibiotics take ten days to kill all bacteria.

D Before the start of antibiotic treatment the bacterial population was rising.

25 What are involved in reproduction in **both** animals and plants?

A ovary and embryo

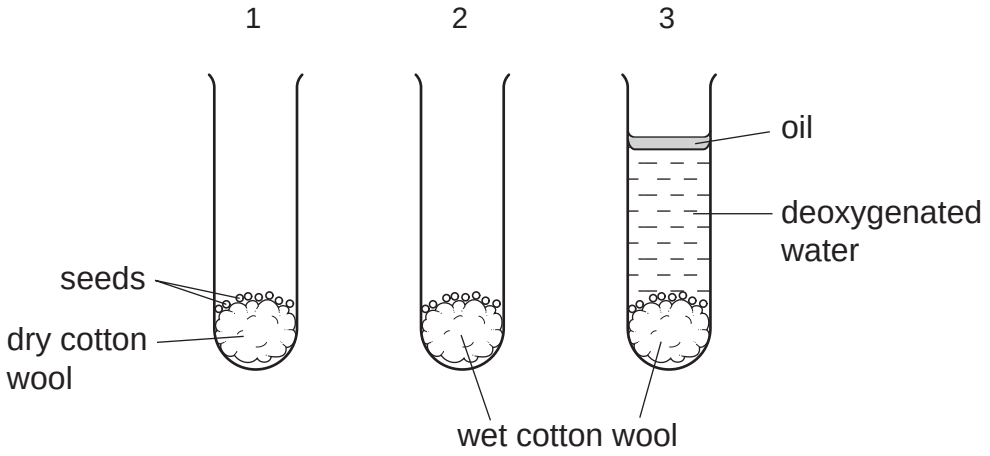
B ovary and testes

C ovule and stigma

D uterus and embryo

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26 The diagram shows an experiment on germination. Groups of test-tubes were set up as shown. The groups were placed in different conditions.



Which table shows the results?

A	condition	1	2	3
	in the dark	✗	✓	✗
	in the light	✗	✓	✗

B	condition	1	2	3
	in the dark	✗	✓	✓
	in the light	✗	✗	✓

C	condition	1	2	3
	in the dark	✓	✓	✗
	in the light	✗	✓	✗

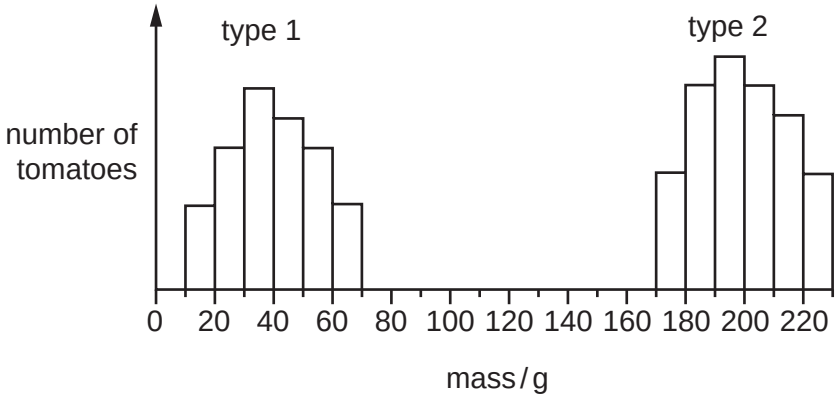
D	condition	1	2	3
	in the dark	✓	✓	✓
	in the light	✓	✗	✗

key

✓ = seeds germinate

✗ = seeds do not germinate

27 The graph shows the masses of two different types of tomato.



What can be concluded from the graph?

A Genes do not affect the mass of tomatoes.

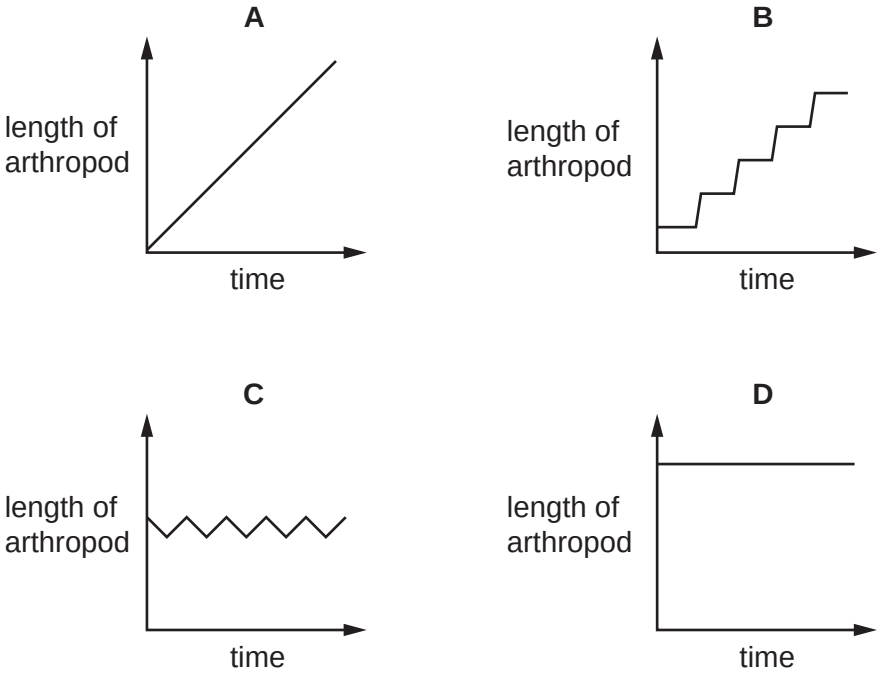
B Type 1 tomatoes show continuous variation.

C Type 2 tomatoes are sometimes smaller than type 1 tomatoes.

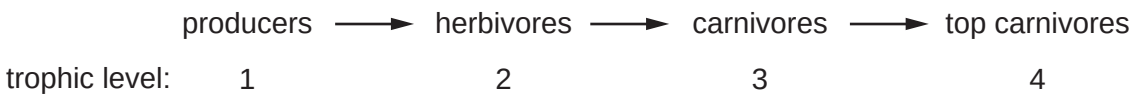
D Type 2 tomatoes show discontinuous variation.

28 In arthropods, growth occurs only after the exoskeleton is shed and before the new one hardens.

Which graph shows a typical growth curve for an arthropod?



29 The diagram shows a food chain.



If the carnivores in trophic level 3 suddenly die out as a result of disease, in which trophic levels will the number of organisms be likely to **decrease**?

A 1 and 2 **B** 1 and 4 **C** 2 and 4 **D** 4 only

30 Genetics is the study of

A development of organisms.

B mechanisms of inheritance.

C nuclear division.

D variation between species.

31 What is **unlikely** to be affected by the environment?

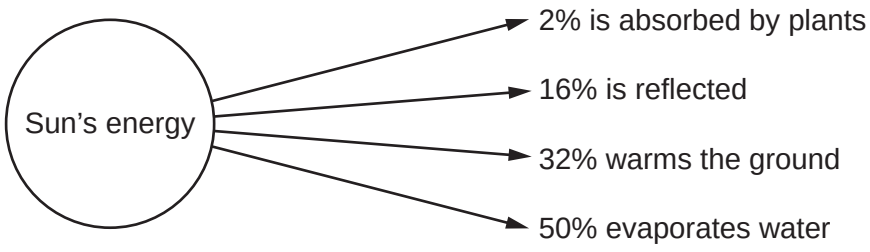
A blood group

B body mass

C health

D height

32 The diagram shows what happens to the energy that enters the atmosphere from the Sun.



How much of the Sun's energy is **not** used for photosynthesis?

A less than 2%

B about 32%

C about 66%

D more than 98%

33 What are products of respiration in green plants?

A glucose and carbon dioxide

B glucose and oxygen

C water and carbon dioxide

D water and oxygen

34 The surface waters of the ocean contain a population of microscopic plants.

Which factor would result in **fewer** of these plants?

A an increase in the population of microscopic animals

B greater concentration of mineral nutrients

C higher temperature

D more light

35 By which process does water enter the atmosphere?

A condensation

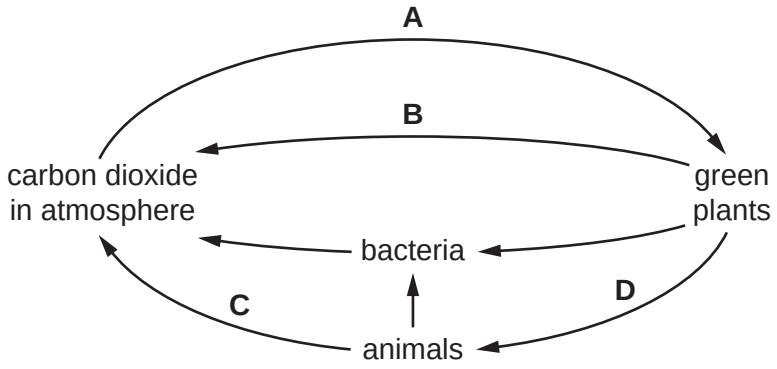
B photosynthesis

C precipitation

D transpiration

36 The diagram shows part of the carbon cycle.

Which labelled arrow represents photosynthesis?



37 What is reduced when untreated sewage is released into rivers?

A the amount of nitrate

B the concentration of carbon dioxide

C the concentration of oxygen

D the number of bacteria

38 In 2005, fifteen mice were set free on an island where mice had never lived before. The table shows how their population changed over the next three years.

year	mouse population
2005	15
2006	62
2007	237
2008	965

What caused the population change shown in the table?

A lack of food

B lack of predators

C lack of space

D lack of water

39 The diagram shows a food chain.

A farmer sprays his cabbages with pesticide.

Which organisms does the farmer want to kill?



40 Which pollutants of water can lead to eutrophication?

	fertilisers	herbicides	insecticides	sewage
A	✓	✓	✗	✗
B	✓	✗	✗	✓
C	✗	✓	✓	✗
D	✗	✗	✓	✓

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