

Cambridge
Secondary 1
Checkpoint

Cambridge International Examinations
Cambridge Secondary Checkpoint

CANDIDATE
NAME

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CENTRE
NAME

Campolide hub



SCIENCE

1st Progression Test

2022/2023

45 minutes

Candidates must answer on the Question Paper.

Additional Materials:

Pen
Pencil
Ruler

Calculator

READ THESE INSTRUCTIONS FIRST

Write your Hub and name on this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

You should show all your working in the booklet.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is 50.

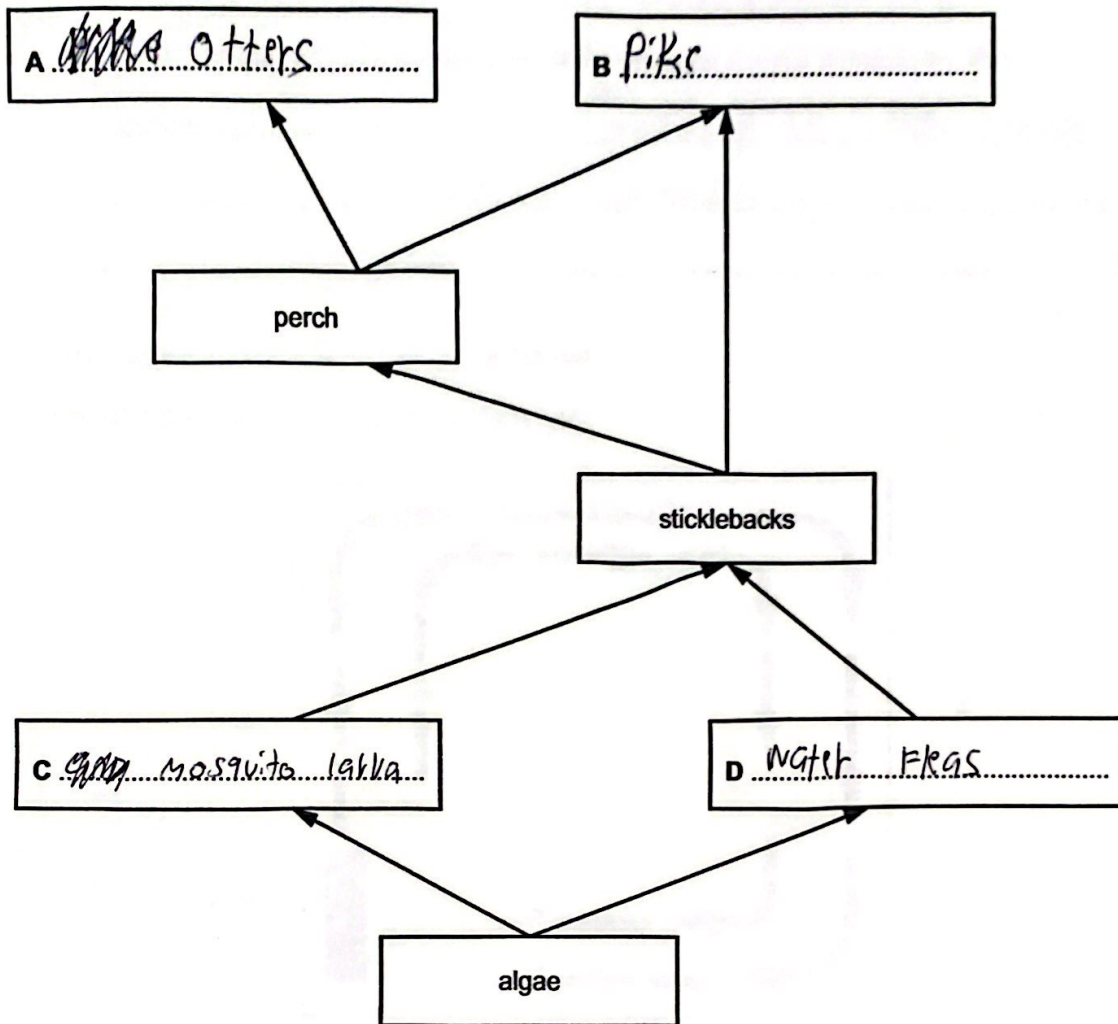
This document consists of 15 printed pages.

BGA LWS

 **CAMBRIDGE**
International Examinations

[Turn over

1 (a) The diagram shows part of a food web in a large lake.



Some organisms are missing from the food web and are shown by the boxes A, B, C and D.

Identify the four organisms using the information.

Algae are small green plants that are eaten by mosquito larvae.

Water fleas also feed on algae.

Sticklebacks are small fish that eat water fleas and mosquito larvae.

Fish such as perch and pike eat sticklebacks.

Pike and otters are predators that compete with each other for perch.

Write the names of each of the organisms in the boxes A, B, C and D.

[3]

(b) In some areas, otters have been introduced into lakes and rivers.

Fishermen claim that this has affected the food web and spoiled their fishing.

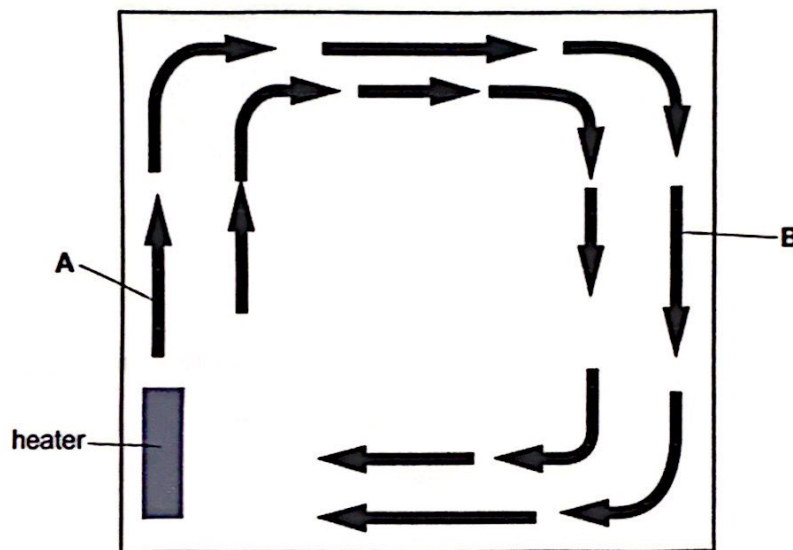
Explain how and why introducing otters could affect the number of fish in the lake.

because otters eat the fish and other animals that other animals eat

[2]

2 The diagram shows how a room can be heated.

The arrows show the direction of air movement.



Use the diagram to complete the sentences.

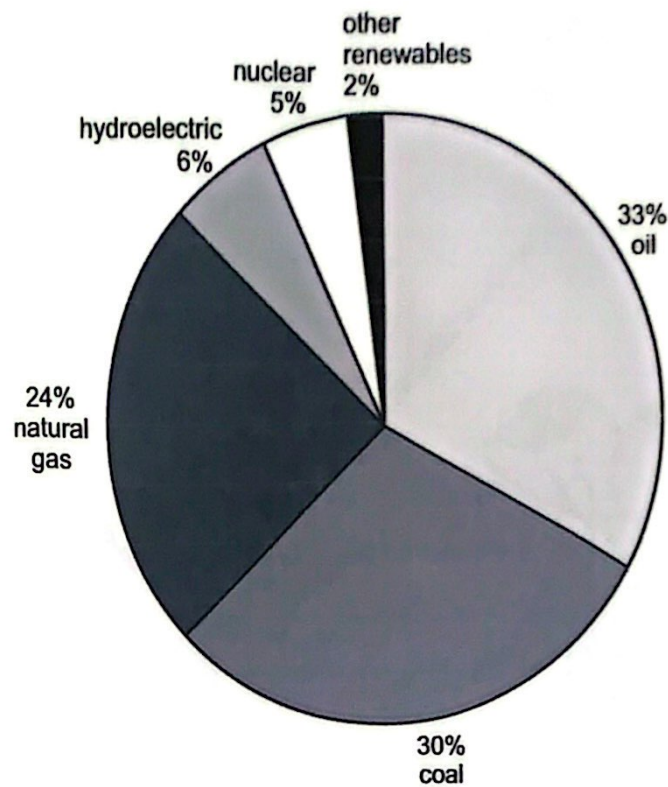
At A warm air rises because it is less dense.

At B cool air sinks because it is more dense.

This process is called radiation.

[3]

- 3 Estinien uses the internet to collect information about the use of world energy resources in 2016.



- (a) Hydroelectric is a renewable resource.

Write down the names of **two other** types of renewable resources.

Solar and Wind [1]

- (b) The pie chart will be different in the year 2050 compared to 2016.

Suggest **three** differences.

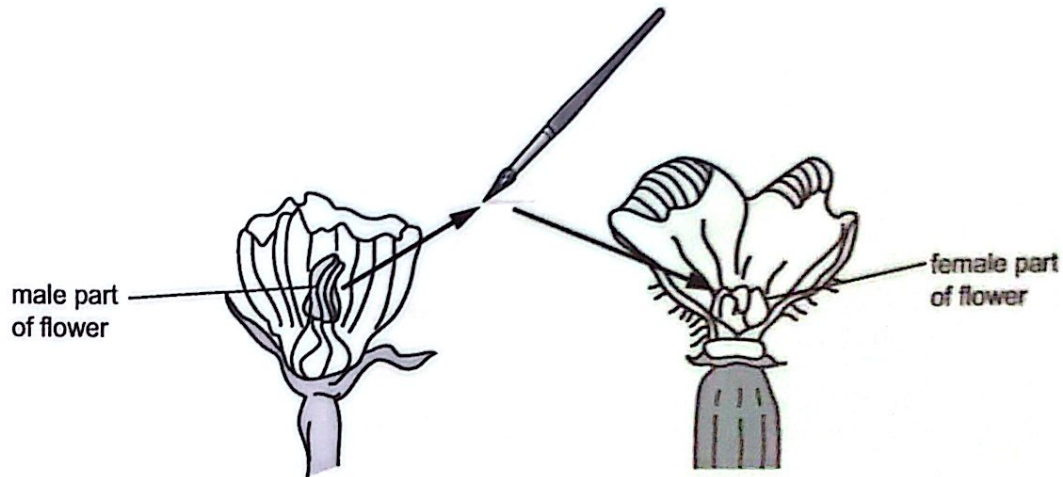
an increase in renewable sources
a decrease in oil
and a decrease in natural gas [3]

- 4 Feo UI grows several different varieties of cucumber plants.

They produce new plants by breeding different varieties together.

Feo UI uses a brush to transfer grains containing male cells from a flower of one variety to the female parts of another variety.

This is shown in the diagram.



- (a) Name the grains containing the male cells.

Pollen

[1]

- (b) Name the process of transferring the grains to the female parts of a flower.

Pollination

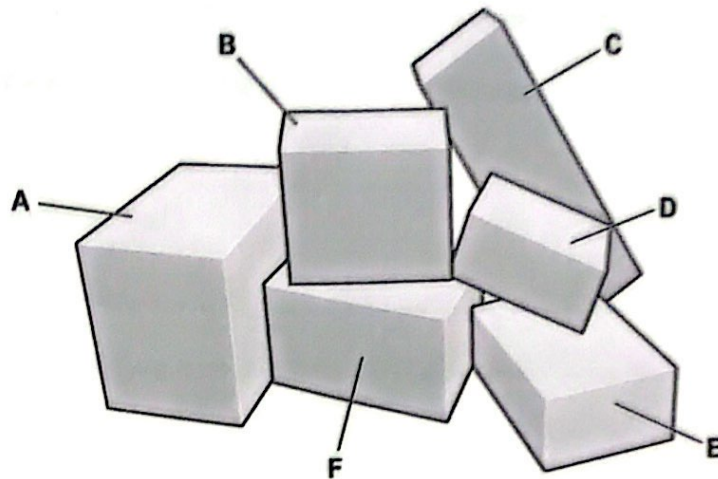
[1]

- (c) Name the process that must take place before seeds are formed.

Germination

[1]

- 5 Gaia and Ryne have six boxes.



They collect information about the six boxes.

box	colour	volume in cm^3	mass in g	density in g/cm^3
A	red	15	18.0	1.2
B	red	12	75.6	6.3
C	green	12	86.4	7.2
D	green	8	78.4	9.8
E	red	10	41.0	4.1
F	green	13	83.2	6.4

- (a) Gaia says

'The green boxes are denser than the red boxes.'

Does the evidence in the table support her statement?

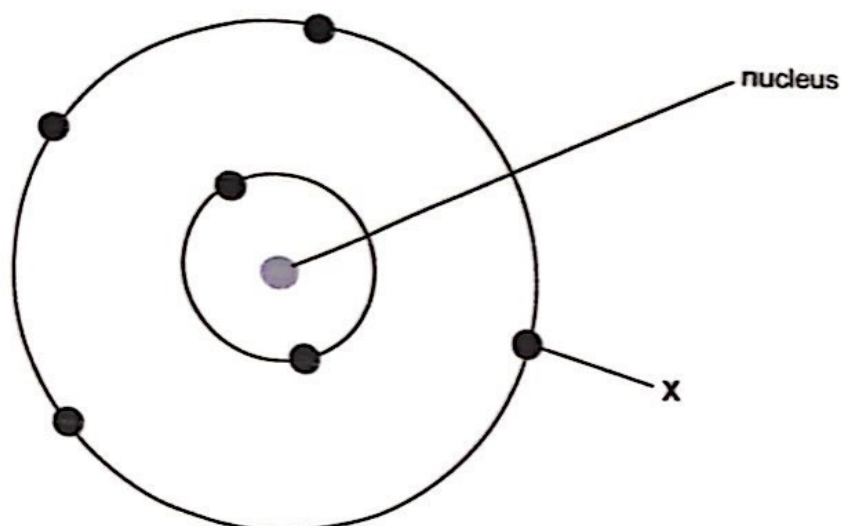
~~YES~~ YES

Explain your answer.

~~Green boxes are denser than red boxes~~
 YES because the density is higher
 as well as the mass

[2]

- 7 The diagram shows a model of an atom of an element.



- (a) Name the part of the atom labelled X.

electrons [1]

- (b) Describe how you can tell that the element is in Group 4 of the Periodic Table.

Use information from the diagram.

..... [1]

- (c) What happens to the size of atoms as you move down Group 4?

increases [1]

- 8 The picture shows a container called a water cooler.

For
Teacher's
Use



The container is made of clay.

- (a) The water in the container soaks into the clay, making the outside wet.

Water evaporates from the outside, cooling the container.

Explain how evaporation cools a liquid.

For a liquid to evaporate it uses
a lot of energy (heat) that is taken
by the liquid inside. [2]

- (b) When the outside cools down, heat energy is transferred through the clay.

Heat travels from the inside of the container through the clay by conduction.

Explain how heat energy is conducted through solids.

When a ^{atom} particle is hot it makes a lot
that then crashes into another creating
heat and that repeats ~~many~~ ^{repeats} ~~many~~ ^{many} times. [2]

9 Thancred's pet mouse has baby mice

Urianger says that grouping together helps the baby mice to keep warm

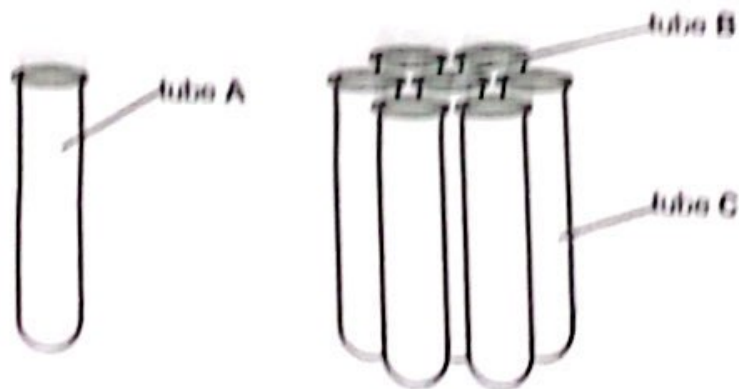


Thancred suggests that they plan an investigation to test Urianger's idea

They use eight test tubes filled with hot water to represent eight baby mice

Thancred labels one tube A and stands it on its own

He labels another tube B and places it in the middle of six other tubes all labelled C



Urianger and Thancred obtain these results.

	time in minutes					
	0	1	2	3	4	5
temperature of water in tube A in °C	73	62	54	38	42	40
water in tube B in °C	73	68	65	62	58	57
water in tube C in °C	73	65	59	54	49	47

(a) Describe two patterns shown by these results.

1 a big decrease in tube A

2 a slight decrease in tube B

[2]

(b) Describe how these results could be displayed to make these patterns more obvious.

a bar graph

[1]

(c) Thancred says that one result is anomalous

Which result is anomalous?

tube A time 4 minutes

Explain how you know the result is anomalous.

because instead of decreasing like the rest it increases

[2]

(d) Baby mice do not have fur.

Thancred thinks that mice lose less heat when they grow fur.

Describe an investigation, using test-tubes of hot water, to see if Thancred's idea is correct.

conducting this same experiment with a fur coat and making sure each one of the tubes has its own fur coat surrounding it

[2]

10 The diagram shows the process of photosynthesis in a leaf of a plant.

Complete the diagram.

Choose words from the list.

~~carbon dioxide~~

~~glucose~~

~~minerals~~

nitrogen

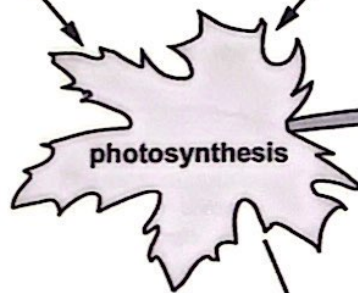
~~sunlight~~

~~water~~

energy from sunlight



uses Carbon Dioxide from the air



takes in water ~~and minerals~~
through the roots

makes glucose

[2]

- 11 Khora and Venari measure the temperature of the air on the same day every week for 5 weeks.

Look at their results.

week	temperature in °C
1	18.0
2	18.5
3	19.2
4	20.0
5	21.0

- (a) Write down the name of the piece of equipment they use to measure temperature.

thermometer [1]

- (b) Write down a different way to present the data from the table.

a bar graph to show the increase [1]

- (c) Khora and Venari make these conclusions.

The data supports the idea of climate change.

Venari says,

The data does not support climate change but does show that the weather has improved.

Khora says,

Who is correct? Khora

Explain your answer.

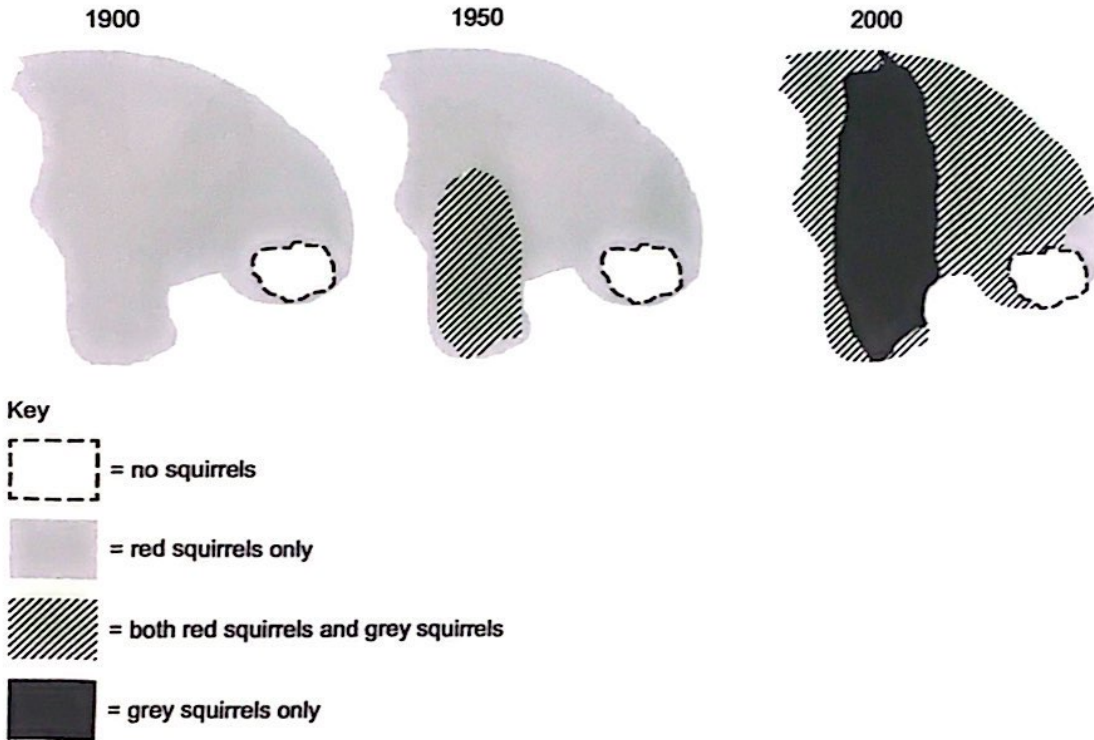
if we are seeing climate change as
change in climate caused by human
activity Khora is right climate
change is not that fast it's probably
just entering summer [2]

12 In 1900 only red squirrels lived on an island.

At the end of that year grey squirrels were introduced onto the island.

Look at the maps.

They show where the red squirrels and grey squirrels lived on the island.



(a) The size of the areas where the red squirrels and grey squirrels live changes between 1900 and 2000.

Describe the changes in the size of these areas.

red squirrels only area decreased a lot

both red squirrels and grey squirrels area increased a lot

grey squirrels only area increased

[2]

(b) Suggest two reasons why these changes happened.

- 1 Possibly for the addition of predators that
- 2 a decrease in the food that red squirrels eat that grey squirrels don't eat

[2]

13 All flowering plants produce seeds.

(a) Why do plants need to produce seeds? Underline the correct word.

fertilisation germination growth reproduction [1]

(b) Which seed can be spread by attaching to an animal's fur?

Tick (✓) one box.



[1]

(c) What is the process called when seeds are spread away from a plant?

pollination

[1]

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