Cambridge Secondary 1 Checkpoint

Cambridge International Examinations
Cambridge Secondary 1 Checkpoint

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

SCIENCE **1113/02**

Paper 2 **For Examination from 2014**

SPECIMEN PAPER

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Pen
Pencil
Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

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 **16** printed pages.

1 **(a)** The boxes show some parts of plants and the function of the parts.

Draw a line from each **part** to match its **function**.

part	function
flower	photosynthesis
leaf	absorption of water
root	transport of water and minerals
stem	reproduction

[3]

(b) Complete the word equation for photosynthesis.

carbon dioxide + ... → glucose + ...

[2]

2 Complete the table by deciding if the information indicates that the element is **a metal or a non-metal**.

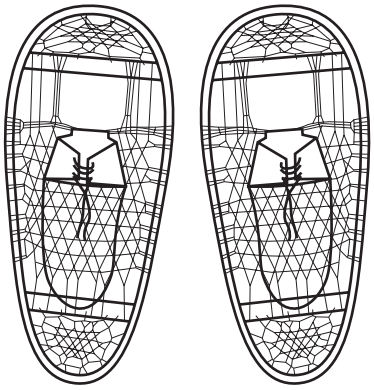
element	magnetic	state at room temperature	Does it conduct electricity?	metal or non-metal
A	no	liquid	yes	
B	yes	solid	yes	
C	no	liquid	no	
D	no	gas	no	
E	no	solid	yes	

[2]

3 Complete each explanation using these words.

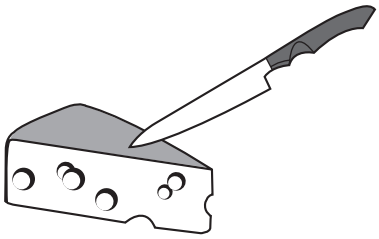
area **force** **pressure**

(a) People who walk across snow may wear snowshoes.



The person does not sink into the snow because the ..... acts on a larger ..... so that the ..... is less. [1]

(b) A sharp knife cuts through cheese more easily than a blunt knife.



The edge of the sharp knife has a smaller ..... so the ..... acting on the knife produces a larger ..... . [1]

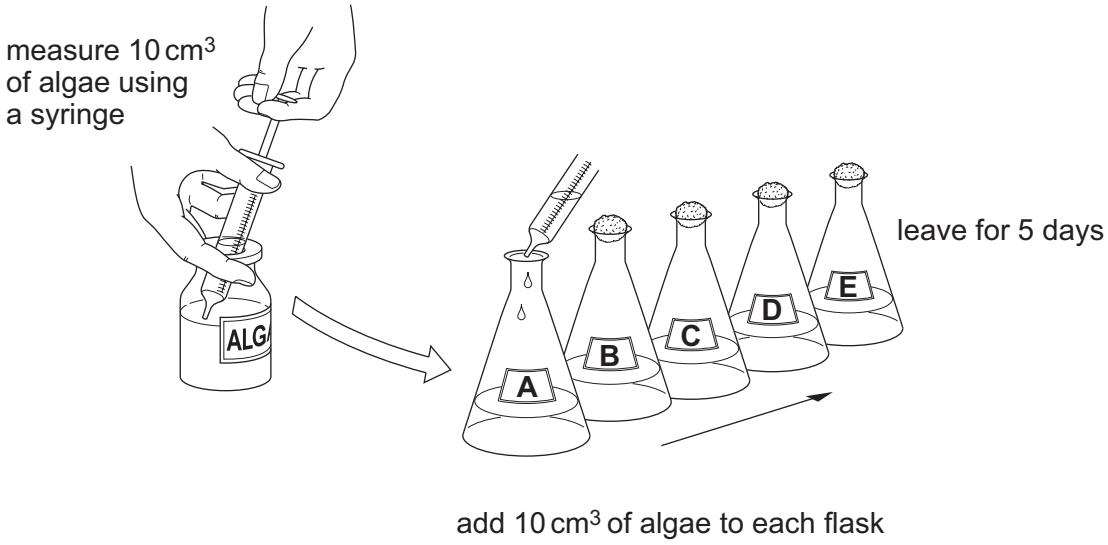
4 Plants and green algae need mineral salts to grow.

One mineral salt is magnesium sulfate.

Ahmed and Safia investigate the growth of algae.

They put different concentrations of magnesium sulfate solution into five flasks, **A**, **B**, **C**, **D** and **E**.

They then add the algae.



(a) Why did Ahmed and Safia put 10 cm^3 of algae into **each** flask?

.....

[1]

(b) Why did they leave the flasks for 5 days?

.....

[1]

(c) Here are their results.

flask	concentration of magnesium sulfate (1 = dilute, 5 = most concentrated)	colour of algae (1 = light green, 10 = dark green)
A	1	4
B	2	5
C	3	8
D	4	10
E	5	1

Complete the sentence to describe the pattern of their results.

As the concentration of magnesium sulfate increases from 1 to 5, the colour of the algae

.....

..... [2]

(d) When the colour of the algae is dark green it has grown the most.

Complete the sentence.

Choose a word from the list.

carbon dioxide **fastest** **the same** **slowest** **sugar** **water**

When the concentration of magnesium sulfate is 4 the algae grow .....[1]

5 Look at the table.

It shows the melting points and boiling points of some elements.

element	melting point in °C	boiling point in °C
gold	1064	2856
iron	1538	2861
mercury	–39	357
oxygen	–219	–183
sodium	98	883

Use the table to answer these questions.

(a) Write down the name of the element that melts at 1538 °C.

..... [1]

(b) Which element is a liquid at room temperature (20 °C)?

..... [1]

(c) Which element is a non-metal?

..... [1]

6 Here are some statements about the solar system.

A The Earth orbits the Sun.

B The Earth spins on its axis.

C The Moon orbits the Earth.

D The stars orbit the Sun.

E The Sun orbits the Earth.

(a) Write down the **letter** of the statement that answers each of these questions.

(i) Why does the Sun appear to move across the sky each day?

..... [1]

(ii) Why do some stars appear in the summer night sky but not in the winter night sky?

..... [1]

(iii) What did Copernicus and Galileo think was **wrong**?

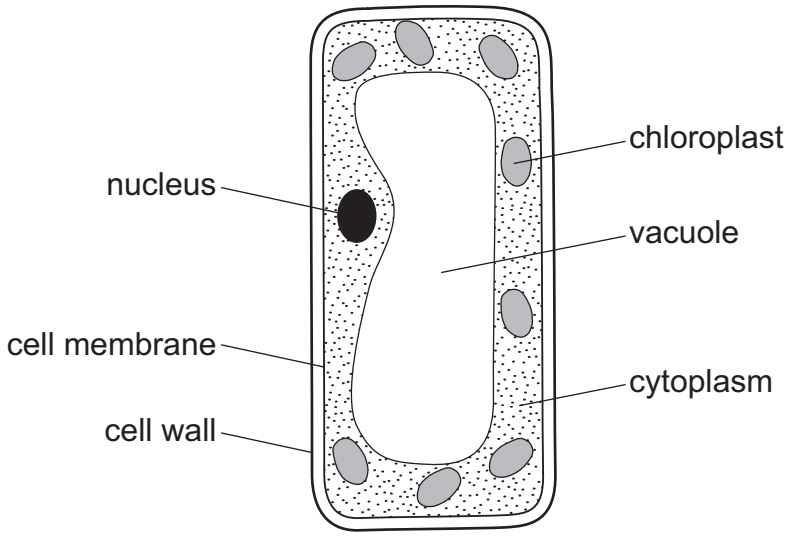
..... [1]

(b) Venus is **not** a source of light.

Explain why it is possible to see Venus in the night sky.

..... [1]

7 The diagram shows a palisade cell.



(a) Which three structures, labelled in the diagram, are **not** found in animal cells?

1. .....

2. .....

3. ..... [3]

(b) Name the part of the cell in which photosynthesis takes place.

..... [1]

8 The Earth is made up of three layers including the core and the crust.

(a) What is the name of the **other** layer?

..... [1]

(b) The core is made up of mainly two metals.

One of these metals is nickel.

What is the name of the **other** metal?

..... [1]

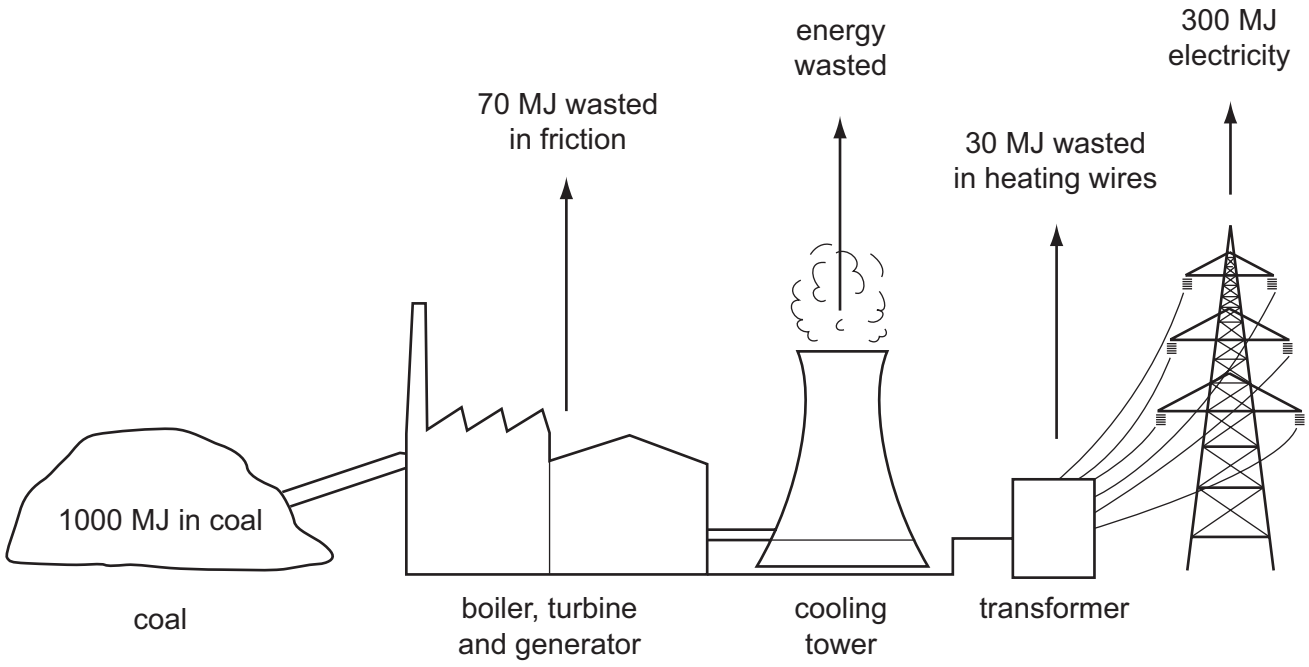
(c) What is the approximate age of the Earth?

Tick (✓) the correct box.

1.1 million years old	☐
1200 million years old	☐
2100 million years old	☐
3200 million years old	☐
4600 million years old	☐

[1]

9 The diagram shows the energy flow into and out of a coal-fired power station.



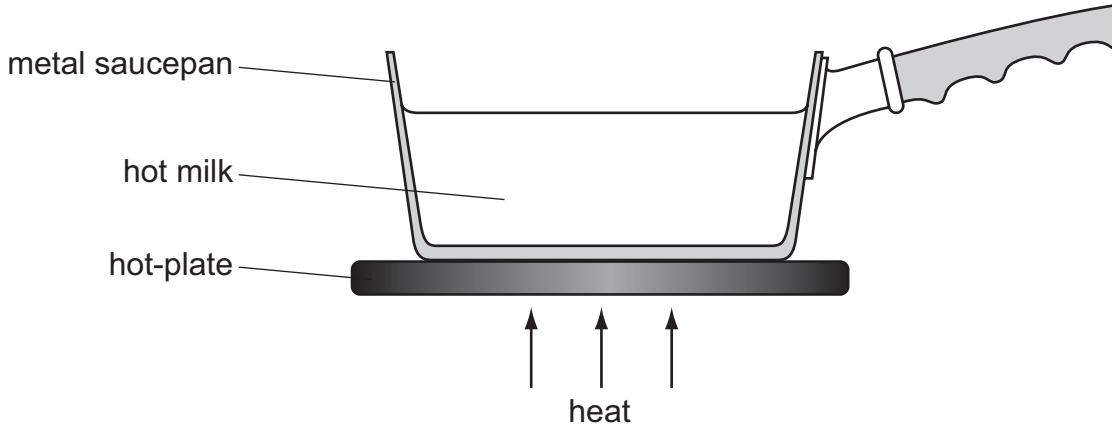
(a) How much useful electrical energy is provided by the power station?

..... MJ [1]

(b) Calculate how much energy is wasted from the cooling tower?

..... MJ [1]

10 Manjit puts a metal saucepan of milk on a cooker.



Thermal (heat) energy can be transferred by conduction, convection and radiation.

(a) Which is the main process that transfers thermal energy **through the milk**?

.....

[1]

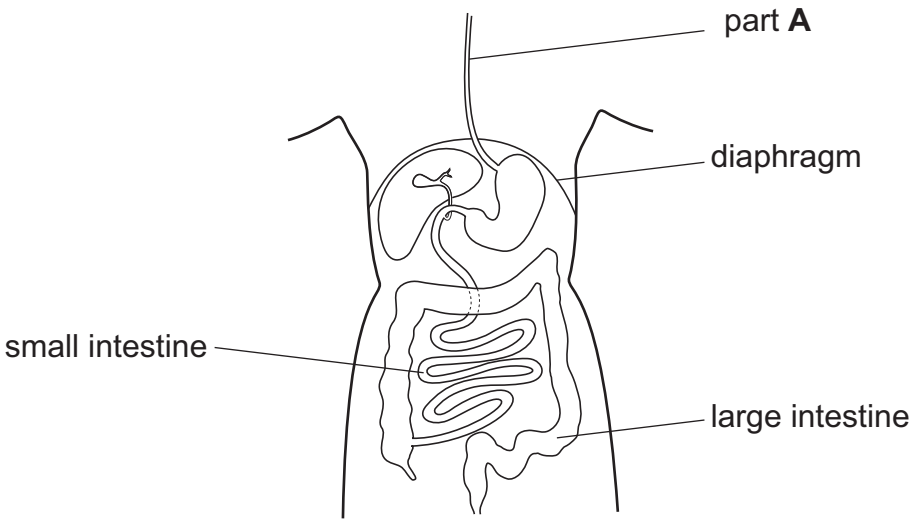
(b) Which is the main process that transfers thermal energy **through the metal saucepan**?

.....

[1]

11 The alimentary canal consists of many different organs.

Look at the diagram of the alimentary canal.



(a) What is the name of part **A?**

.....

[1]

(b) The stomach is not labelled on the diagram.

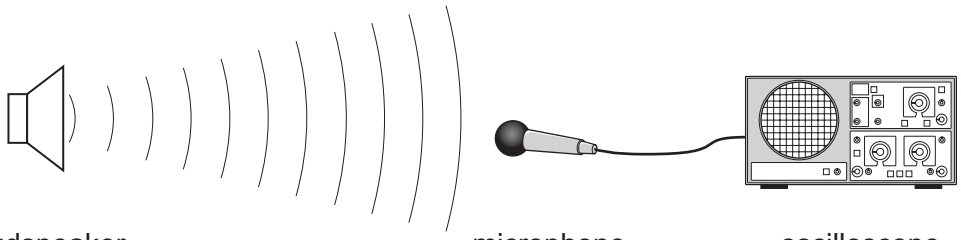
Draw a label line on the diagram to show the stomach. [1]

(c) Draw lines to match the **organ** with its **function**.

organ	function
large intestine	food is mixed up into a creamy liquid
small intestine	digests proteins, carbohydrates and fats and absorbs water, amino acids, sugars and fatty acids
stomach	absorbs water
	food is chewed into smaller pieces

[2]

12 Yuri does an experiment on sound.

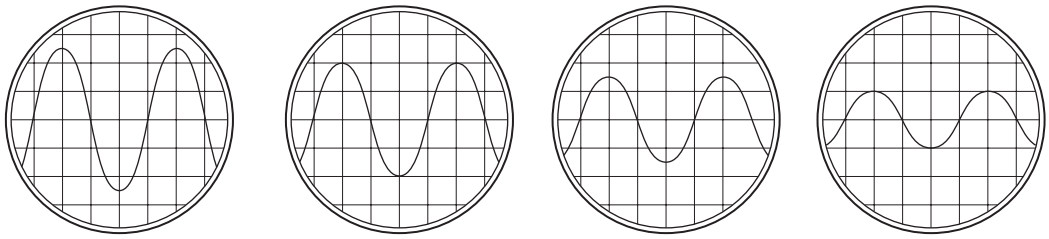


Yuri connects a microphone to an oscilloscope.

He places the microphone at different distances from the loudspeaker.

He records the amplitude of the wave on the oscilloscope.

Here are some of the results on the oscilloscope.



(a) Use these pictures to complete the results table.

distance in cm	**amplitude of wave in number of squares**
4	2.5
6	.....
11	.....
25	1

[2]

(b) Which pattern best describes the results?

Tick (✓) the **correct** answer.

the amplitude does not change with distance	☐
the amplitude decreases with distance	☐
the amplitude increases with distance	☐
there is no pattern in the results	☐

[1]

13 Hydrogen peroxide is used to make oxygen in the laboratory.

Hydrogen peroxide breaks down to form water and oxygen.

(a) This reaction is much faster when a chemical called manganese(IV) oxide is added to the hydrogen peroxide.

The manganese(IV) oxide is unchanged at the end of the reaction.

What type of chemical is manganese(IV) oxide?

Tick (✓) the **correct** answer.

acid	☐
alkali	☐
catalyst	☐
metal	☐

[1]

(b) Blessy investigates the effect of temperature on the breakdown of hydrogen peroxide.

(i) Write down the variable she should **change**.

.....

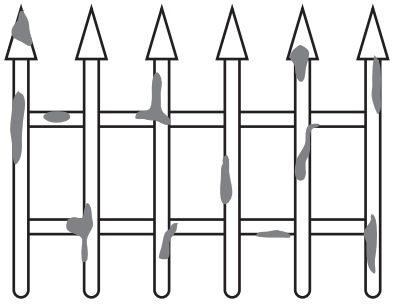
[1]

(ii) Write down **one** variable she should **control** (keep the same).

.....

[1]

14 Some metal railings have started to rust.



(a) Which metal were the railings made of?

Circle the correct answer.

aluminium **copper** **iron** **lead** [1]

(b) Which **two** substances must be present for the railings to rust?

Circle the **two** correct answers.

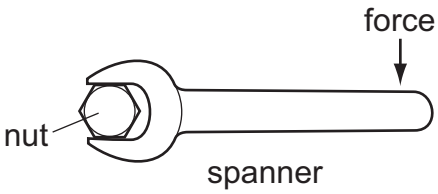
carbon dioxide **hydrogen** **nitrogen** **oxygen** **water** [2]

(c) How can you prevent railings from rusting?

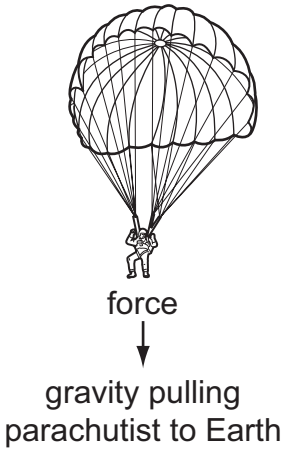
..... [1]

15 This is a question about forces.

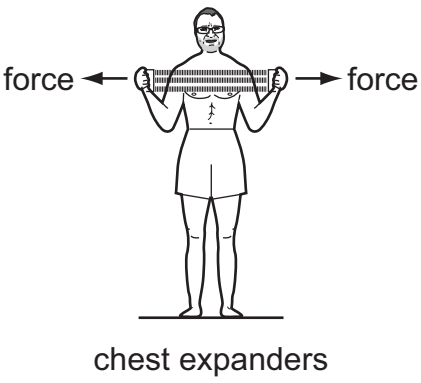
Look at the diagrams.



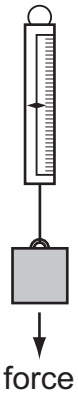
A



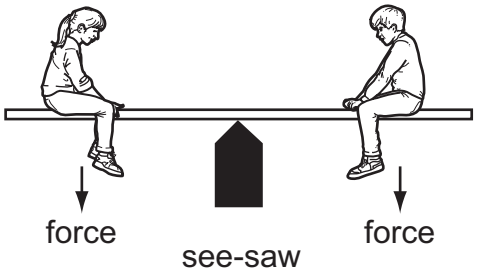
B



C



D



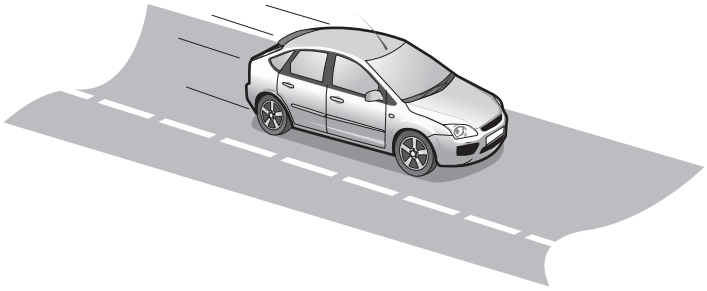
E

Which diagrams show a turning force?

Choose from **A**, **B**, **C, D** and **E**.

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

16 A car is driving along a road.



Complete the sentences about the car.

Use words from the list

air resistance	**chemical**	**elastic**
friction	**gravity**	**kinetic**

The car is slowing down. The forces that slow the car down are .....

and ..... . [2]