

45 minutes

# Science Paper 2

## Stage 7

Name .....

Additional materials: Ruler

### READ THESE INSTRUCTIONS FIRST

Answer **all** questions in the spaces provided on the question paper.

You should show all your working on the question paper.

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

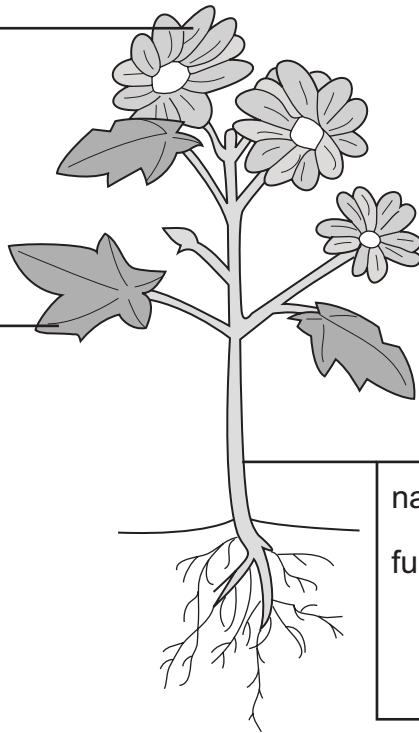
The total number of marks for this paper is 50.

For Teacher's Use	
Page	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
<b>Total</b>	

1 (a) Name and describe the function of parts of the plant.  
One has been done for you.

For  
Teacher's  
Use

name:.....  
function:.....  
.....  
.....



name:.....  
function:.....  
.....  
.....

name: stem  
function: keeps the plant  
upright

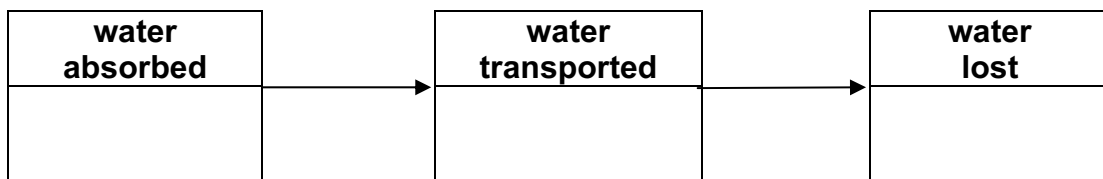
[2]

(b) Water is absorbed by the plant.

Water is then transported through a different part of the plant.

Water is lost through another part of the plant.

Fill in each box with the name of the parts where these processes happen.



[1]

- 2 (a) Farid has three different fuels.

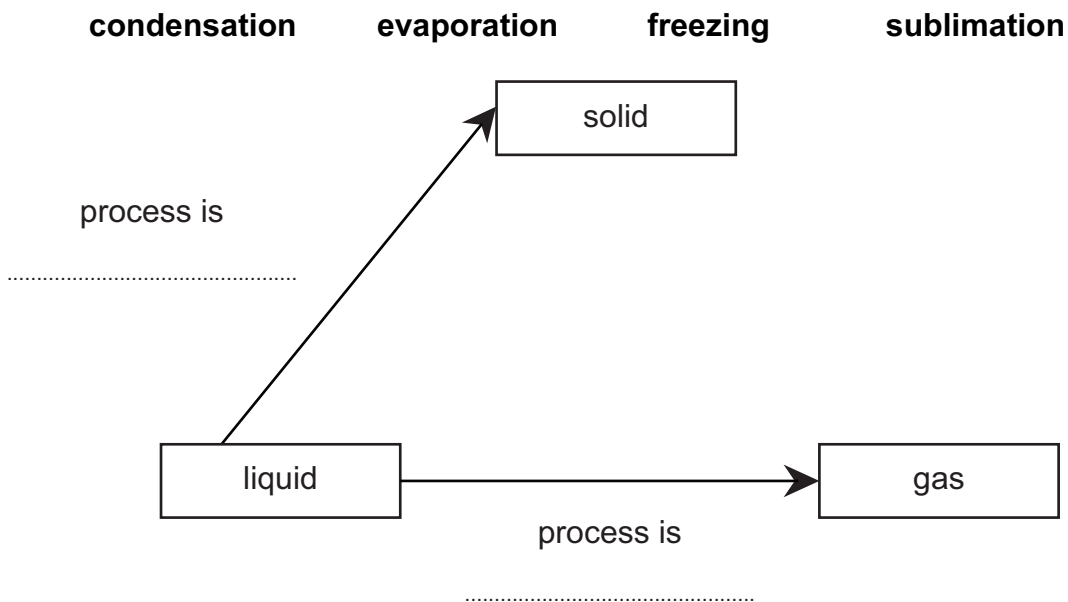
Draw lines between each fuel and the correct state of matter.

fuel	state of matter
Fuel is stored in bags.	gas
Fuel flows along a pipe to where it is needed.	liquid
Fuel is stored under pressure in cylinders.	solid

[1]

- (b) (i) Solids, liquids and gases can change from one state of matter to another.

Use the words in the list to write the names of the processes shown in the diagram.



[2]

- (ii) Draw an arrow (  $\longrightarrow$  ) on the diagram to show what happens during the process of melting.

[1]

3 The colour of pH paper can change in different solutions.

For  
Teacher's  
Use

type of solution	colour of pH paper
(most) acidic (least)	red
	orange
	yellow
neutral	green
(least) alkaline (most)	blue
	dark blue
	purple

(a) Maryam tests different fruit juices with pH paper.

fruit juice	colour of pH paper
pineapple	orange / yellow
mango	green
tomato	yellow / green
lemon	red
orange	orange / red

(i) Which juice is neutral?

..... [1]

(ii) Which juice is the **most** acidic?

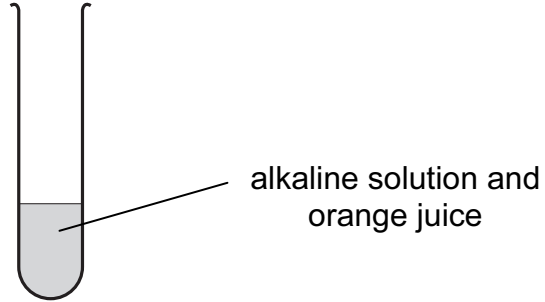
..... [1]

(b) Maryam dips pH paper into a solution of pH10.

Suggest the colour of the pH paper.

..... [1]

(c) Maryam mixes an alkaline solution with orange juice.

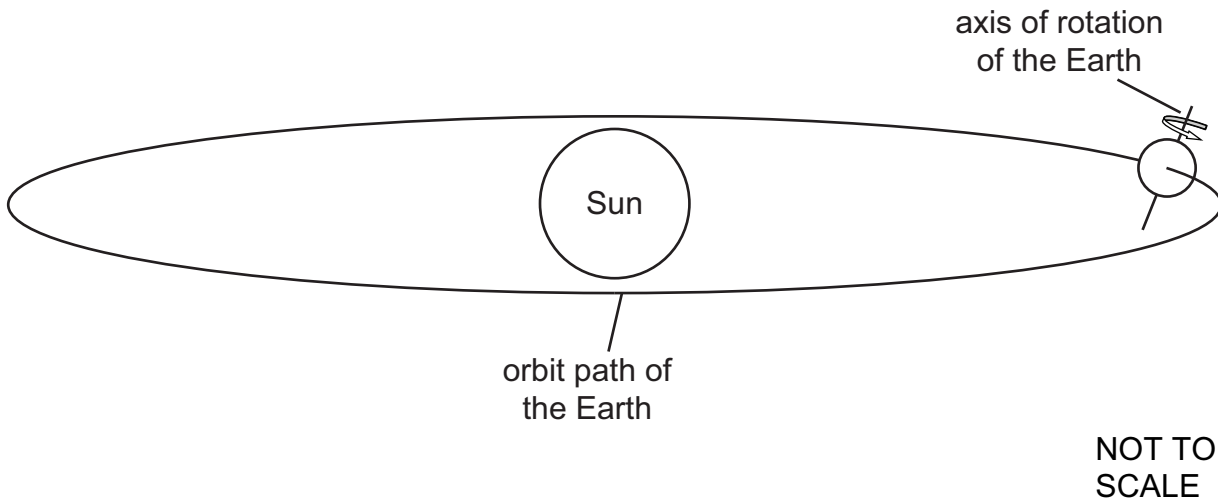


What is the name of this reaction between an alkali and an acid?

..... [1]

*For  
Teacher's  
Use*

4 The Earth is always moving.



(a) How long does it take for the Earth to make one orbit of the Sun?

Underline the answer from the list.

- 1 hour
- 1 day
- 1 week
- 1 month
- 1 year

[1]

(b) How long does it take for the Earth to rotate on its own axis?

Underline the answer from the list.

- 1 hour
- 1 day
- 1 week
- 1 month
- 1 year

[1]

(c) Explain why the Sun appears to move in the sky during a day.

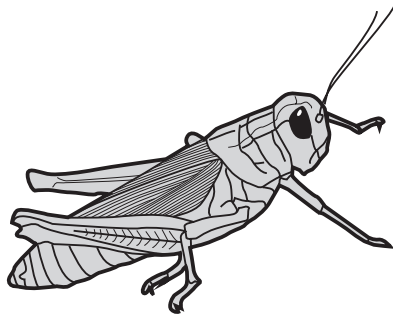
.....

.....

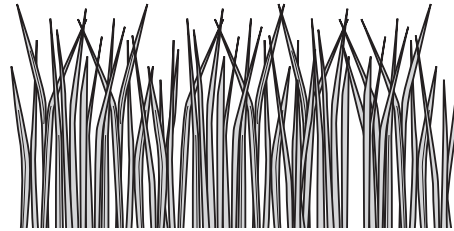
[1]

5 The diagrams show four different organisms.

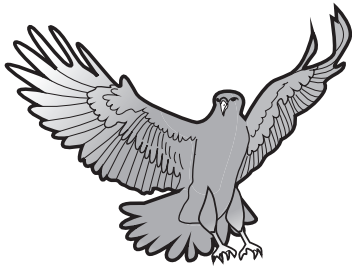
For  
Teacher's  
Use



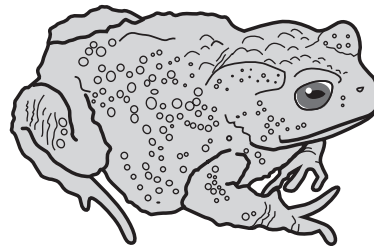
grasshopper



grass



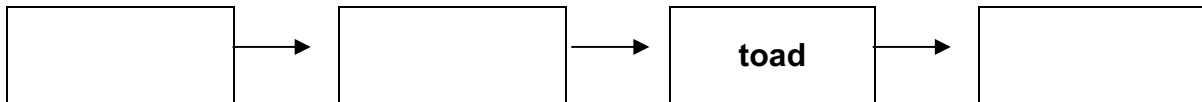
hawk



toad

NOT TO  
SCALE

(a) (i) Complete the food chain for these organisms.



[1]

(ii) Which organism in this food chain is a producer?

[1]

.....

(iii) All the toads in this food chain are removed by humans to make medicines. Suggest what happens to the hawks.

[1]

.....

.....

(b) Underline the **three** words that can be used to classify a hawk.

reptile

animal

vertebrate

plant

bird

invertebrate

amphibian

mammal

[2]

6 Different types of soils have different properties.

For  
Teacher's  
Use

type of soil	pH	texture	contains
sandy	8.0	grit-like	granite
silty	7.0	fine particles	quartz
chalky	8.0	small stones	calcium carbonate
peaty	4.5	fibre-like	organic material
loamy	7.5	mixed	sand, silt and clay

(a) (i) Which type of soil has a neutral pH?

..... [1]

(ii) Fir trees grow best in acidic soils.

Which type of soil would be the best soil to choose to grow a fir tree in?

..... [1]

(iii) Some soils trap too much water.  
Water drains straight through other soils.

Why does sandy soil dry very quickly after rain?

..... [1]



- (b) Yasmin collects a sample of soil.  
She does some tests on the soil.  
She makes some notes.

For  
Teacher's  
Use

The soil is a light colour.

I can see little, grit-like grains in the soil.

When I tested the pH, it was 8.0.

I cannot see any stones or fibres in the soil.

- (i) The type of soil that Yasmin has collected is .....  
because ..... and .....

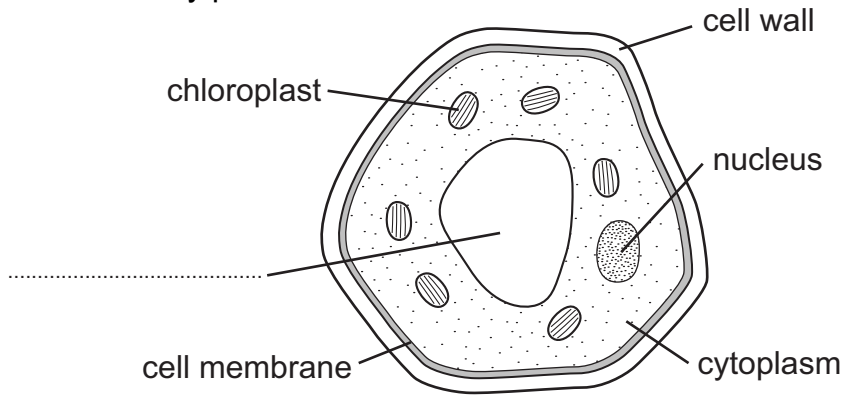
..... [2]

- (ii) Particle size, pH and colour are properties of soil.  
They can be used to classify soils.

Suggest **another** property that could be used to classify soils.

..... [1]

7 Plant cells contain many parts.



(a) One part of this cell has not been named.  
Add this name to the diagram.

[1]

(b) Chloroplasts are not found in all plant cells.

(i) Name a plant cell that has chloroplasts.

..... [1]

(ii) Name a plant cell that does **not** have chloroplasts.

..... [1]

(c) Two parts labelled on the diagram are **not** found in any animal cells.

Which **two** parts?

1 .....

2 ..... [1]

8 Planets orbit at different distances from the Sun.

Put the planets in the correct order of distance from the Sun.

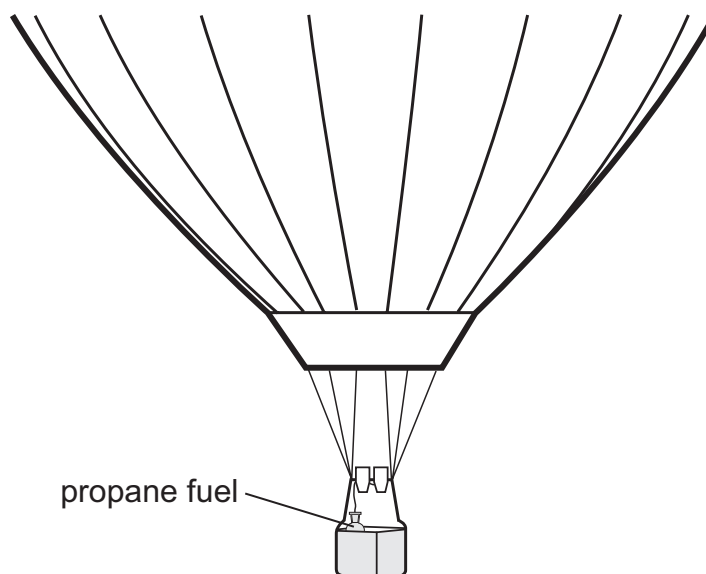
The closest planet has been done for you.

planet	order
Earth	
Mercury	1
Mars	
Saturn	
Neptune	

*For  
Teacher's  
Use*

[1]

9 Hot air balloons travel through the air.



The air inside the balloon is heated by burning propane fuel.

Tick (✓) the **three** correct sentences.

The hot air balloon has the most kinetic energy when moving the fastest.

The hot air balloon has the most kinetic energy after it has landed on the ground.

The chemical energy in the propane fuel is changed into heat energy.

The hot air balloon has no light or sound energy when it is travelling through the air.

The hot air balloon has the most potential energy when it is the highest in the sky.

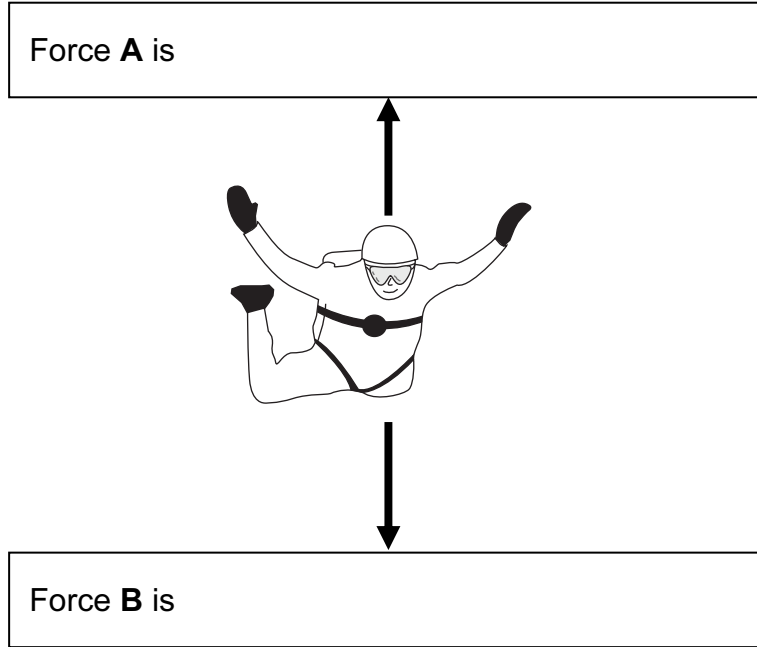
[2]

For  
Teacher's  
Use

10 Jakub is a skydiver.  
He jumps from a plane.

(a) Jakub falls towards the Earth before his parachute opens.

(i) Name force **A** and force **B** on the diagram.



[2]

(ii) At the start of his skydive force **B** is larger than force **A**.

Describe the motion of Jakub.

..... [1]

(iii) A short time later, force **B** is the same size as force **A**.

Describe the motion of Jakub now.

..... [1]

(b) Jakub's parachute opens.



Some students investigate how the size of the parachute affects how fast he falls.

They talk about their ideas.

ideas

**Idea 1** - All the parachutes should have the same mass.

**Idea 2** - We need to do each test twice.

**Idea 3** - We will have to make models to investigate this.

**Idea 4** - All the parachutes should be made of the same material.

**Idea 5** - I think the biggest parachute will be the slowest.

(i) Which **two** ideas are about controlling a variable (fair test)?

..... and .....

[1]

(ii) Which idea is a prediction?

.....

[1]

(iii) Write down another possible prediction.

.....

[1]

(iv) Suggest **one** reason why the students need to make models.

.....

.....

[1]

(c) Some students investigate how the size of the parachute affects how fast Jakub falls.

List **two** measurements they need to make.  
What equipment could they use for each measurement?

1. Measurement .....

Equipment .....

2. Measurement .....

Equipment .....

[3]

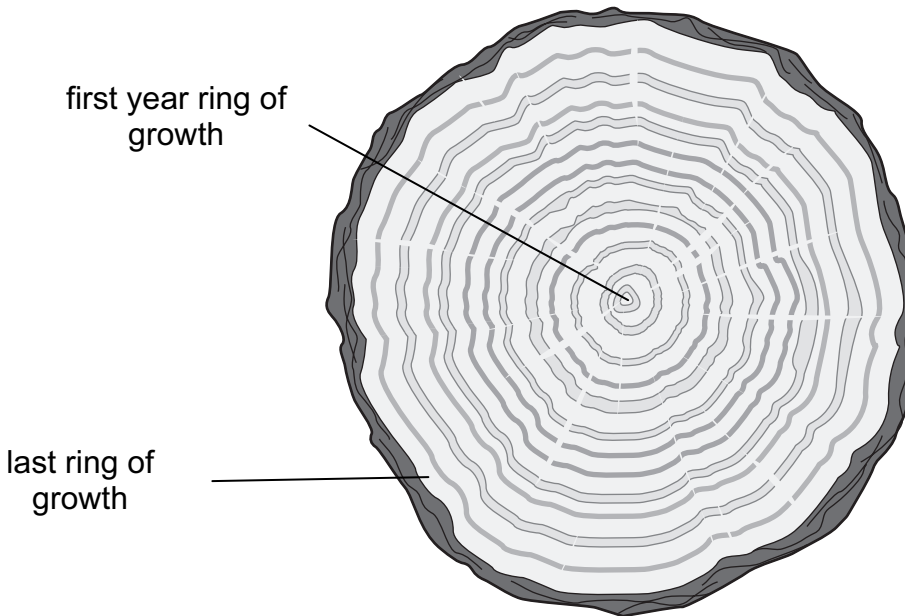
11 Jovana investigates the growth of trees in a forest.

(a) Suggest **one** way Jovana can measure how much a tree grows in one year.

.....  
.....

[1]

(b) Jovana sees a tree trunk that has been cut down.  
This picture shows the inside of the tree trunk.



Jovana knows that tree trunks produce a new ring of growth each year.

(i) How can she tell how old the tree is?

.....

[1]

(ii) What would she measure to find out how much this tree grew last year?

.....

[1]

(c) Give **two** reasons why a tree grows at different rates each year.

1 .....

2 .....

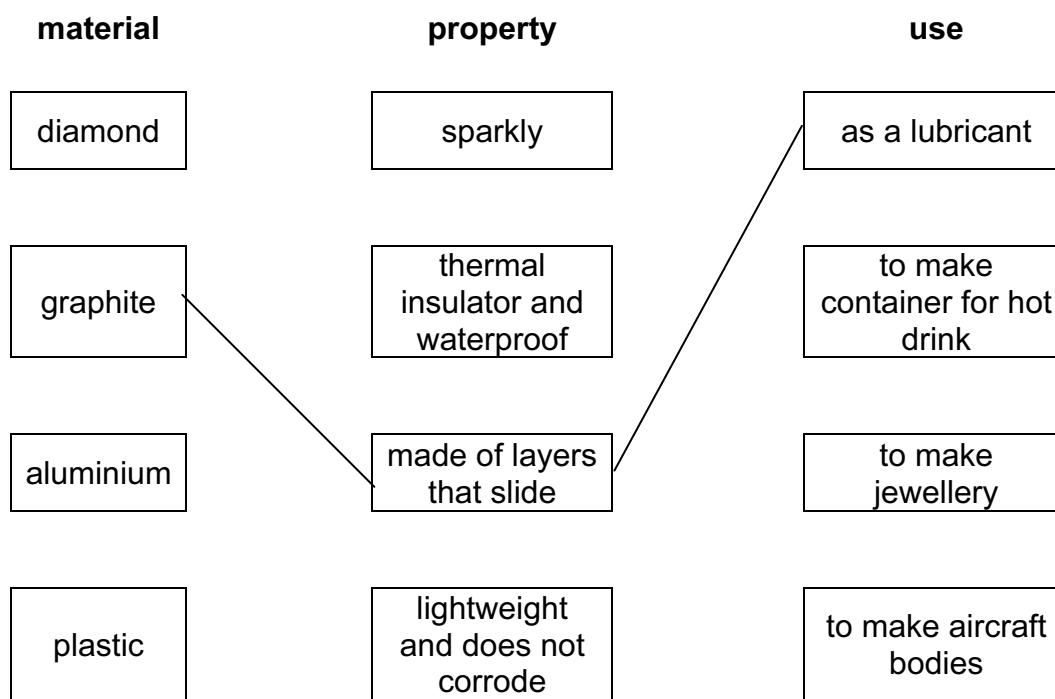
[2]



**12** Different materials have different properties and uses.

Draw lines to connect each material to its property and each property to its use.

One has been done for you.



[2]

For  
Teacher's  
Use

**BLANK PAGE**

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.