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Name: _____ Class: _____ Date: _____

PRIMARY 4 · SCIENCE · PLANT PARTS AND FUNCTIONS

Plant Parts and Functions

Theory and worked examples

A plant is a system

A system is made of different parts. Each part has its own function, and the parts work together. A plant is a system. Its main parts are the roots, the stem and the leaves. Many plants also have flowers and fruits.

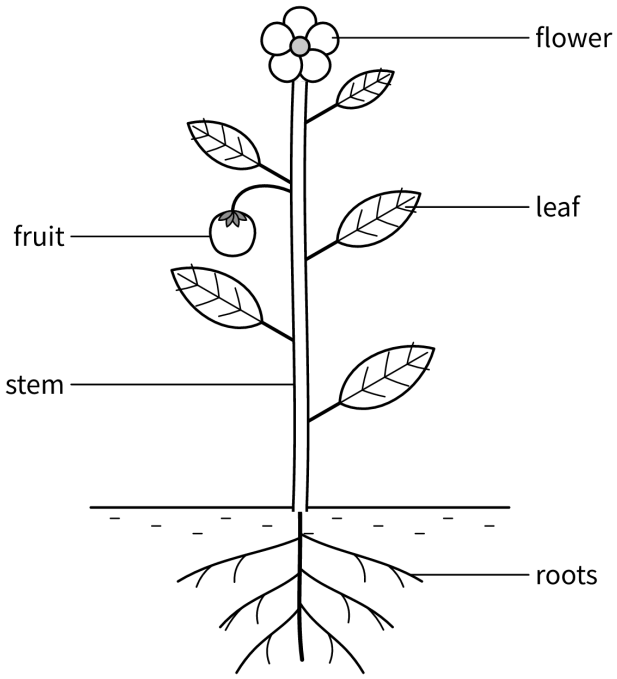
KEY IDEA

A plant is a system: its roots, stem and leaves each have their own functions and work together to keep the plant alive.

WORDS TO KNOW

system	a whole made of different parts that work together; each part has its own function
function	the job that a part does

Plant part	Functions
Roots	Hold the plant firmly in the soil. Take in (absorb) water and mineral salts.
Stem	Holds the plant upright. Carries water and mineral salts from the roots to all parts of the plant. Carries food from the leaves to all parts of the plant.
Leaves	Make food for the plant. Take in and give out gases.
Flowers and fruits	Flowers can grow into fruits. Fruits contain seeds. (You will learn more about them in Primary 5.)

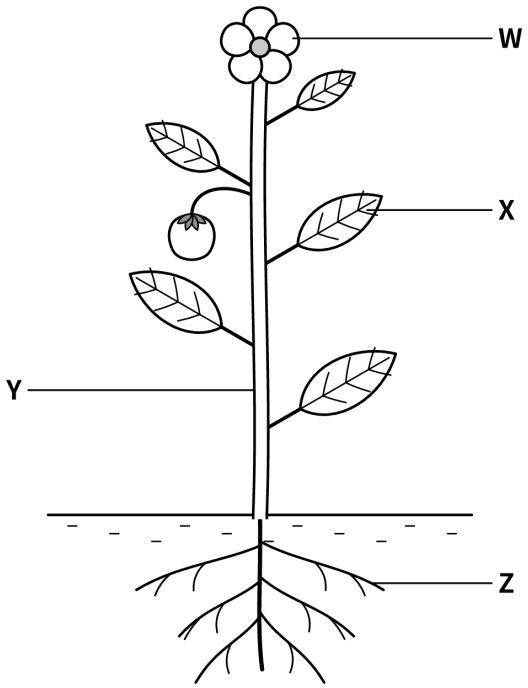


WORKED EXAMPLE

The diagram shows a plant with four parts, W, X, Y and Z.

(a) Which part holds the plant upright? Name the part.

(b) State one other function of this part.



1. What is the question asking? It asks for the part with one function (holding the plant upright), then for another function of the same part.
2. The science idea: the stem holds the plant upright. The stem also carries water, mineral salts and food.

3. Link to the diagram: the stem is the long part between the roots and the leaves. It is part Y.

(a) Part Y, the stem. (b) The stem carries water and mineral salts from the roots to all parts of the plant. (Also correct: it carries food from the leaves to all parts of the plant.)

TRY THIS

Name the three main parts of a plant.

Answer: The roots, the stem and the leaves.

Roots: holding the plant and taking in water

The roots of most plants grow in the soil. They spread out and grip the soil, so they hold the plant firmly in the soil. Wind and rain cannot push the plant over easily. Roots also take in water and mineral salts from the soil. A plant needs water and mineral salts to stay alive and to grow well.

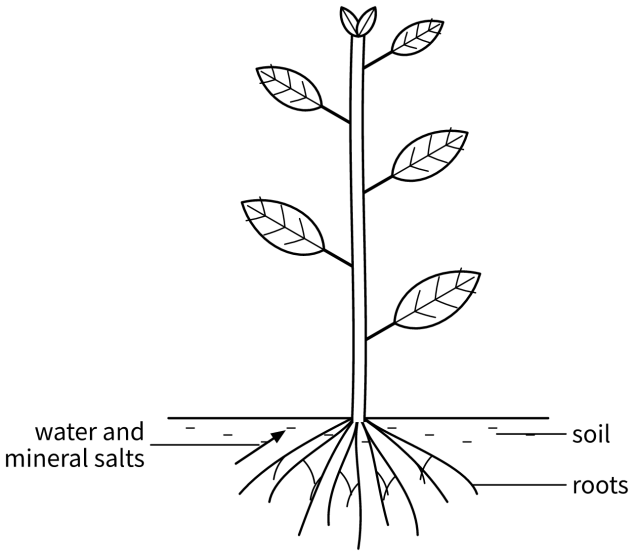
KEY IDEA

Roots have two functions: they hold the plant firmly in the soil, and they take in (absorb) water and mineral salts.

- Roots do not take in food from the soil. A plant makes its own food in its leaves.
- A plant with more roots, or longer roots, is held more firmly in the soil. It can also take in more water.
- The roots of a water plant hang in the water. They take in water and mineral salts from the water.

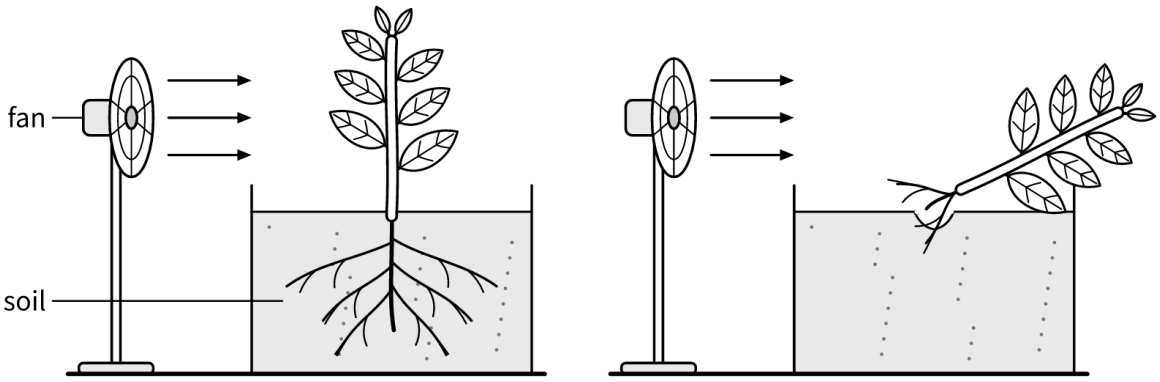
WORDS TO KNOW

absorb	to take in; roots absorb water and mineral salts
mineral salts	substances in the soil that a plant needs to grow well; they enter the roots together with water



WORKED EXAMPLE

Farah grew two plants of the same kind, A and B, in the same type of soil. Plant A had many long roots. Plant B had only a few short roots. She placed a fan at the same distance from each plant and switched it on at the same speed. Plant B fell over but plant A stayed upright. Explain why.



Plant A: many long roots Plant B: a few short roots

1. What is the question asking? Why one plant fell over and the other did not. Look for the difference between the plants: their roots.
2. The science idea: roots hold the plant firmly in the soil.
3. Link to the plants: plant A has more roots and longer roots to grip the soil than plant B.

Roots hold the plant firmly in the soil. Plant A had more and longer roots than plant B, so plant A was held more firmly in the soil and stayed upright. Plant B had only a few short roots, so it was not held firmly and the moving air pushed it over.

TRY THIS

Why is it hard to pull a big weed out of the ground?

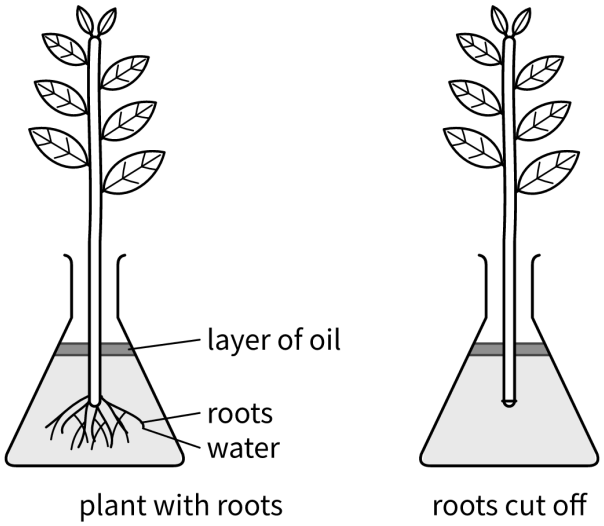
Answer: Its roots hold it firmly in the soil.

Experiment: do roots take in water?

We can test what roots do. Take two plants of the same kind and size. Cut the roots off one plant. Stand each plant in a container with the same volume of water. Pour a thin layer of oil on the water. After a few days, compare how much water is left in each container.

- The layer of oil prevents water from being lost to the surroundings (water cannot evaporate into the air through the oil). So any water that is gone was taken in by the plant.
- Result: the water level in the container of the plant with roots drops a lot. The water level in the container of the plant without roots drops very little.
- The cut end of a stem can still take in a little water, but much less than roots can.
- Conclusion: roots take in water for the plant.

Word used in experiments	What it means
Aim	What the experiment is trying to find out.
Variable changed	The one thing that is made different between the set-ups.
Variables kept the same	All the other things. They are kept the same to ensure a fair test.
What is measured	The result that we observe or measure, for example the volume of water left.
Conclusion	What the results tell us. It answers the aim.



CHAPTER 1

Practice Questions

Part 2: Plant Parts and Functions



In the practice questions

21 questions, 54 marks. For each multiple-choice question, write the number of the correct option in the brackets. Write your other answers on the lines given. The answers are on page 220.

- **Section A: Multiple-Choice Questions: 14 questions, 28 marks**
- **Section B: Open-Ended Questions: 7 questions, 26 marks**

Name: _____ Class: _____ Date: _____

PRIMARY 4 · SCIENCE · PLANT PARTS AND FUNCTIONS

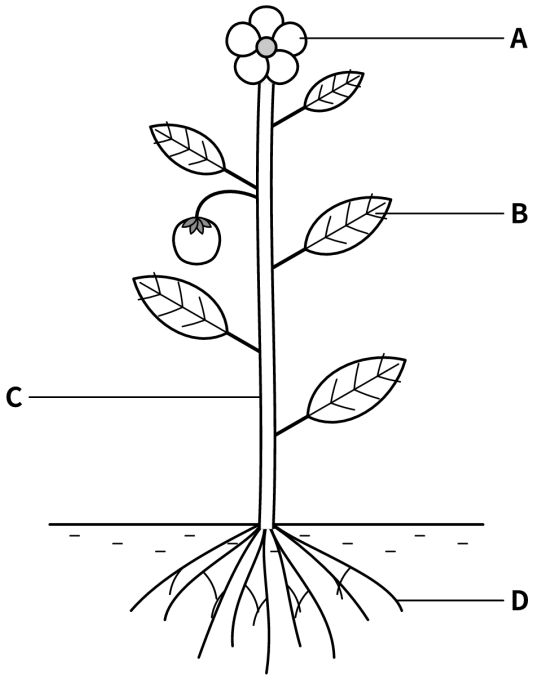
Plant Parts and Functions

INSTRUCTIONS

- 21 questions, 54 marks in total.
- Answer all questions in the spaces provided.
- For multiple-choice questions, write the option number in the brackets.
- Write your other answers on the lines given, in full sentences.

Section A: Multiple-Choice Questions

1 The diagram shows a plant. Which part, A, B, C or D, takes in water and mineral salts? ( ) [2]



① A ② B ③ C ④ D

2 Which of the following describes a system? ( ) [2]

1. One part that does every job on its own
2. Different parts that work together, each with its own function
3. Parts that all have the same function
4. Parts that work on their own and do not affect one another

3 The leaves of a plant _____. ( ) [2]

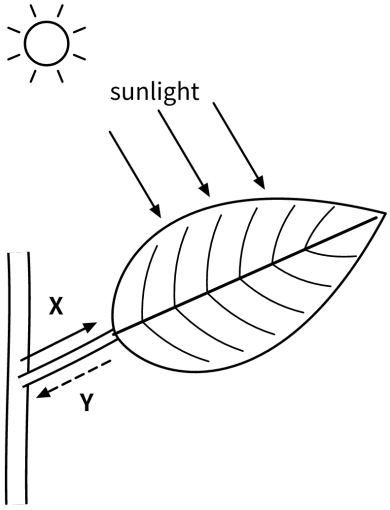
1. make food for the plant
2. take in mineral salts from the soil
3. hold the plant firmly in the soil
4. carry water from the roots to the flowers

4 Wei Jie wrote the functions of some plant parts in a table. Which row, (1), (2), (3) or (4), is wrong? ( ) [2]

Row	Plant part	Function
(1)	roots	hold the plant firmly in the soil
(2)	stem	carries water to all parts of the plant
(3)	leaves	take in water and mineral salts
(4)	stem	holds the plant upright

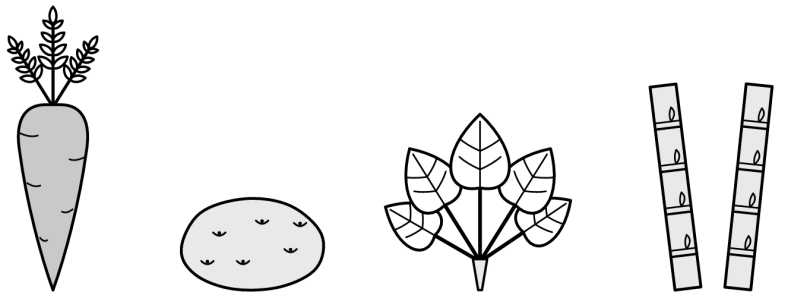
1. Row (1)
2. Row (2)
3. Row (3)
4. Row (4)

5 The diagram shows a leaf on a plant in the day. The solid arrow X shows something coming into the leaf from the stem. The dashed arrow Y shows something leaving the leaf for the other parts of the plant. What do arrows X and Y show? ( ) [2]



(1) X: food, Y: water
(2) X: water, Y: food
(3) X: sunlight, Y: water
(4) X: food, Y: mineral salts

6 The pictures show four foods that come from plants. Which two foods are stems? ( ) [2]



(1) carrot and potato
(2) carrot and spinach
(3) spinach and sugar cane
(4) potato and sugar cane

7 Which of the following statements about the stem of a plant are correct?
A: It holds the plant upright.
B: It carries food from the leaves to the other parts of the plant.
C: It takes in water and mineral salts from the soil. ( ) [2]

(1) A and B only (2) A and C only (3) B and C only (4) A, B and C