

# Macmillan Science

Workbook

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# Scope and sequence

Topic	Page	Objectives
<b>Topic 1</b> Plant parts: roots and stems 	4	State the functions of a plant's roots State the functions of a plant's stem
<b>Topic 2</b> Plant parts: branches and leaves	8	Explain how leaves help plants make food Describe how branches support leaves
<b>Topic 3</b> Looking at flowers	12	Compare different flowers Explain that the flowers of some plants become fruits that contain seeds Collect and draw specimens
<b>Topic 4</b> Germination and growth	16	Describe the stages of germination Observe and record the germination and growth of a bean Describe the conditions needed for germination
<b>Topic 5</b> How animals respond to heat and cold 	20	Describe some different ways in which animals respond to heat and cold Describe how animals may use the heat of the sun to warm their bodies or seek shade to avoid overheating Show the cooling effect of water as it evaporates and the insulating properties of fur
<b>Topic 6</b> How animals are born and grow	24	Classify animals as oviparous (egg-layers) or viviparous (live-bearers) Discuss the connection between the number of eggs or litter size and the degree of care from the parents
<b>Topic 7</b> How my body grows 	28	Describe the different stages of human growth and development Identify how the children in your class have changed and grown
<b>Topic 8</b> Different kinds of food	32	Explain why we need food Group foods according to type Explain some of the effects that different food types have on the body
<b>Topic 9</b> A balanced diet	36	Explain that a good diet has a mixture of different foods Plan a healthy meal Identify foods that should be avoided in excess
<b>Topic 10</b> Keeping food clean and safe	40	Explain that germs cause disease Identify routes through which food becomes contaminated Know that proper hygiene, cooking and preserving keeps food safe

Topic	Page	Objectives
<b>Topic 11</b> <b>What is matter</b> 	44	Explain that the things around us are made from matter Explain that matter has mass and takes up space Use a balance to compare masses Show that the mass of material remains unchanged when it is together or in parts
<b>Topic 12</b> <b>Investigating materials</b>	48	Describe the different properties of materials Identify different materials and the purposes for which they are used Relate the properties of materials to their uses
<b>Topic 13</b> <b>States of matter</b>	52	Classify matter as solid, liquid or gas Compare the properties of the different states of matter
<b>Topic 14</b> <b>Changing state</b>	56	Observe and give examples of freezing, condensing, evaporating, melting, boiling Discuss how the mass and volume of water change when it changes state Describe the water cycle
<b>Topic 15</b> <b>Light and colour</b>	60	Classify light sources as natural or artificial Investigate the properties of light from different sources Demonstrate that light travels in straight lines Make a spectrum (rainbow) from white light Make invisible ink
<b>Topic 16</b> <b>The sun, the Earth and the moon</b> 	64	Describe the motion of the earth around the sun Explain why we have day and night Identify and compare the sun, the Earth and the moon
<b>Topic 17</b> <b>The changing moon</b>	68	Describe the motion of the moon around the Earth Explain why the shape of the moon appears to change (the phases of the moon) Describe the relationship between the phases of the moon and the months of the year
<b>Topic 18</b> <b>The planets</b>	72	Name the eight planets of the Solar System Describe the main features of each planet

# Topic 1 Plant parts: roots and stems

1 Draw lines to match the labelled parts of the plant to the job they do.

The diagram shows a plant with two leaves above ground and a root system below ground. A blue dot on the stem is connected by a dotted line to a box labeled 'stem'. A blue dot on the roots is connected by a dotted line to a box labeled 'roots'. There are four other boxes with functions: 'supports branches and leaves', 'take water from the soil', 'carries water to leaves and flowers', and 'anchor the plant'. The background features a red circular graphic and the Macmillan Education logo.

supports branches and leaves

take water from the soil

carries water to leaves and flowers

anchor the plant

stem

roots

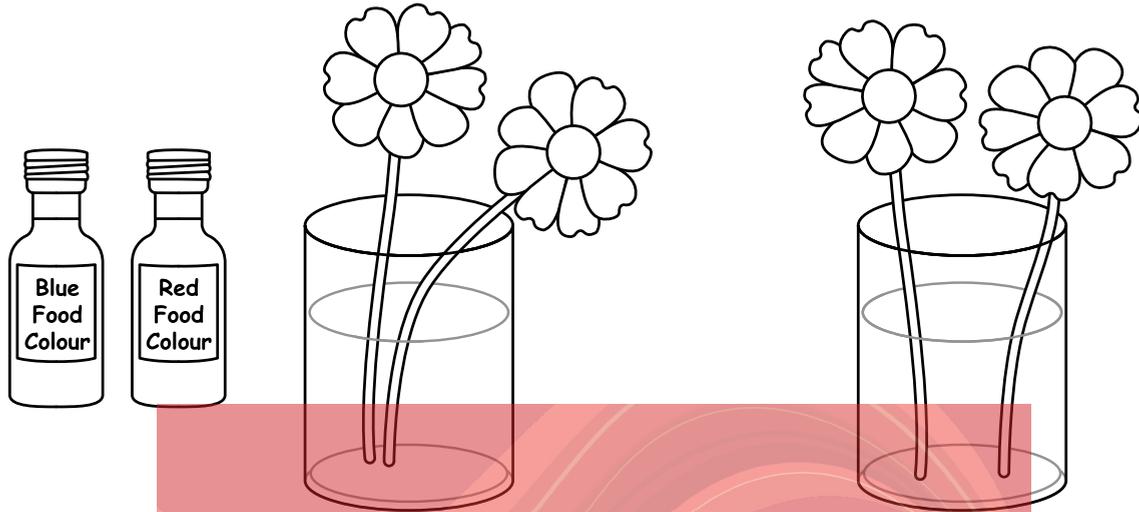
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2 True ✓ or false ✗?

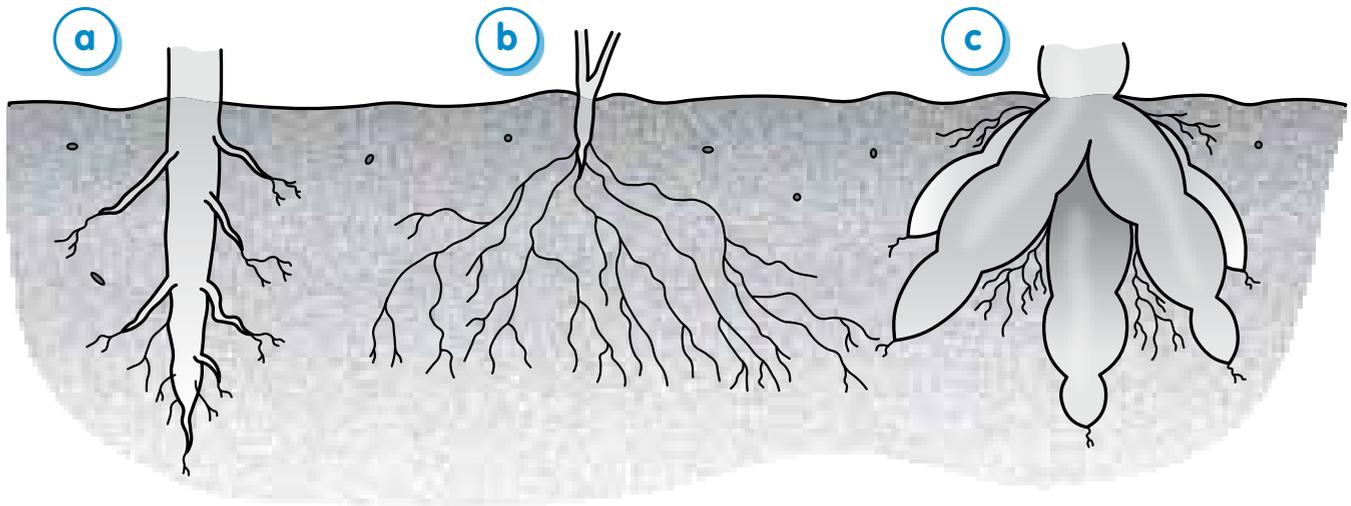
- a Leaves anchor a plant in the soil.
- b The stem supports branches and leaves.
- c Roots take blood from the soil.
- d The stem carries water to leaves and flowers.

**3 Draw what will happen to the flowers if they are put in coloured water. Add some arrows to show how water moves through the stems.**



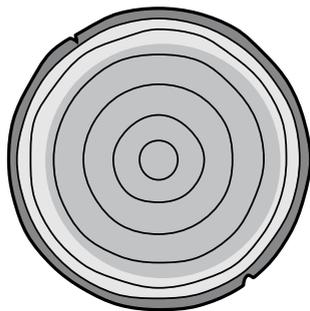
**4 Rearrange the letters to find three types of root.**

u s b f i r o                      s r a t o g e                      p t a  
 ----- roots                      ----- roots                      ----- roots

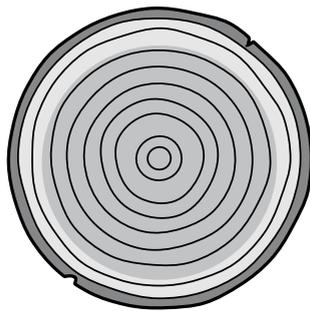


**Draw lines to match each root type to the right picture.**

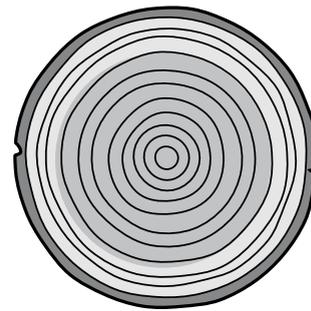
**5 How old are these trees?**



\_\_\_\_\_ years



\_\_\_\_\_ years



\_\_\_\_\_ years

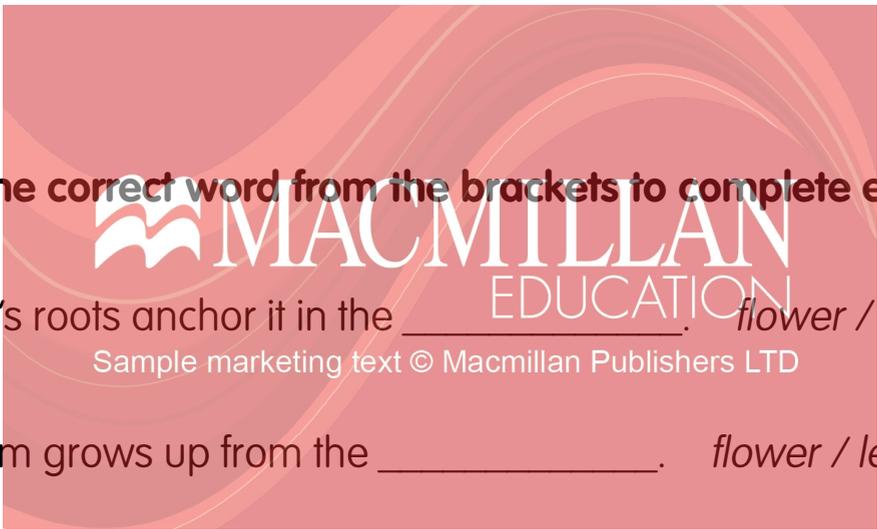
**6 Choose the correct word from the brackets to complete each sentence.**

**a** A plant's roots anchor it in the \_\_\_\_\_. *flower / soil / branch*

**b** The stem grows up from the \_\_\_\_\_. *flower / leaf / ground*

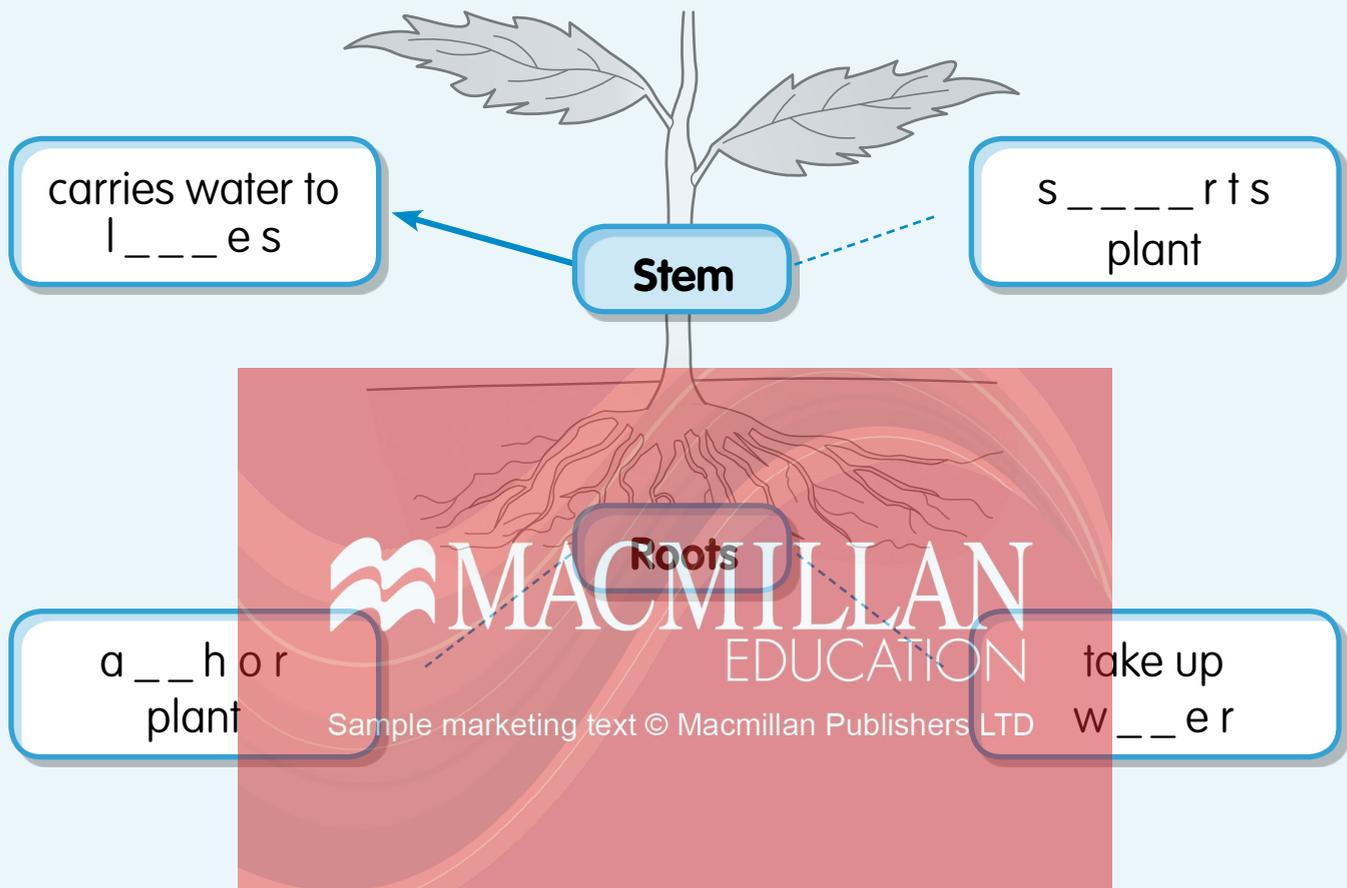
**c** Water travels through leaves inside \_\_\_\_\_. *veins / air / flowers*

**d** A plant's stem supports the branches and \_\_\_\_\_.  
*water / leaves / soil*





- 7** A plant's stem and roots have different jobs to do.  
Complete the words in the boxes.  
Finish the arrows to complete the chart.



**8** Which plant part am I?

I anchor the plant in the wind.

I take water from the soil.

You eat me as a carrot or a yam.

I am a plant's \_\_\_\_\_.

I support the plant's branches and leaves.

I carry water from the roots to the leaves and flowers.

You eat me as celery or asparagus.

I am a plant's \_\_\_\_\_.