Roots to Flowers: Jobs of Plant Parts

Teacher		**Class**	Year 3
Subject	Science	**Topic**	Parts of a plant
Date		**Room**	
Lesson length	60 minutes	**Country**	United Kingdom

Pupils learn the jobs of roots, stem, leaves and flowers. They act out the jobs and label a real flowering plant.

Curriculum links

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers [1]

Learning objectives

- Students will name the roots, stem, leaves and flowers on a plant.
- Students will describe one important job for each plant part.
- Students will explain how a tree trunk is like a big stem.

Success criteria

- I can point to roots, stem, leaves and flowers.
- I can say one job for each part.
- I can say how a trunk is like a stem.

What students already know

Show a potted plant and ask: What parts can you already name? What did you learn about plants in Year 1 and Year 2?

Key words

roots	parts that grow under the soil and soak up water [3]
stem	stalk that holds a plant up and moves water upwards [3]
trunk	thick, strong, woody stalk of a tree covered in bark [3]
leaves	flat green parts that catch sunshine to make food [3]
flowers	bright coloured parts where seeds develop for new plants [3]

Materials

- small potted flowering plants, one between two pupils
- magnifying glasses, one between two pupils
- paper mats and sticky labels
- Slides 1–12 and whiteboard
- Video clip 1 (0:00–4:40) on Slide 6
- Worksheet Task D demonstration notes, one per pupil
- large picture of a small flowering plant and large picture of a tree

Before the lesson

- Print Worksheet Task D, one per pupil, and sticky labels for Slide 9 task
- Test Slide 6 Video clip 1 (0:00–4:40) for sound and picture
- Set out paper mats, magnifying glasses and potted plants on tables
- Print Slide 3 part cards for support table and prepare plant and tree pictures

Lesson outline

0–5 min **Starter** 5 min · Whole class

Hook pupils and recall known plant parts before learning their jobs.

YOU DO

1. Hold up a covered potted plant and say the hook to spark curiosity.
2. Show Slide 1 Roots to Flowers! and read the question aloud.
3. Show Slide 2 Today we will objectives and read the three I can lines together.
4. Ask what parts pupils already know from Year 1 and Year 2 plants work [1].

STUDENTS DO

1. Look at the plant and join in the hook question.
2. Read the objectives aloud and show thumbs up for parts they know.
3. Name any parts they remember to a partner.

Say: I have a living thing here that drinks without a mouth and stands up without legs, who can help me find all its hidden parts? Today we will name roots, stem, leaves and flowers. We will say one job for each part.

Ask: What parts of a plant have you seen before? (Roots, stem, leaves, flowers, petals.) · What do you think plants need to live and grow? (Water, light, soil, air.)

Check understanding: Hands up to name one part; if few remember, point to the real plant and name the visible parts together.

Support: Point to the real plant parts as you name them so pupils hear and see together. **Stretch:** Ask what job they think one part might do before we learn it.

Use: Slides 1–2

5–17 min **Teaching** 12 min · Whole class

Teach the names and one key job for roots, stem, leaves, flowers and trunk.

YOU DO

1. Show Slide 3 Meet the Four Parts cards and model each name with an action.
2. Show Slide 4 photo and explain what grows under and above the soil.
3. Show Slide 5 question and lead think, pair, share about trunk and stem.
4. Sum up that a trunk does the same carrying job but stronger for a tall tree.

STUDENTS DO

1. Copy each action and say each job aloud together.
2. Talk to a partner: could a thick trunk do the same job as a thin stem?
3. Feed back one idea about trunks and stems.

Say: Roots keep the plant in the ground and hold it up, and take in water from the soil. The stem holds up the plant and carries water to the leaves. Leaves take in sunshine and turn it into food to help it grow. Seeds come from the flower part of a plant.

Worked example: Roots — crouch low and wiggle fingers down: hold the plant up and take in water from the soil [4]. Stem — stand tall: holds up the plant and carries water to the leaves [4]. Leaves — stretch arms wide: take in sunshine and turn it into food [4]. Flowers — make a cup with hands: seeds come from the flower part [4].

Ask: What does the stem do for the plant? (It holds up the plant and carries water to the leaves [4].) · Could a thick trunk do the same job as a thin stem? (Yes, the trunk of a tree is like the stem of a small plant, only stronger, and it too carries water around the tree [3].) · What is a trunk made of and what are tree roots for? (The trunk is made of wood and is covered in bark [3]; the roots help a tree to stay upright in strong winds [3].)

Check understanding: All pupils show the four actions on call; reteach any part where actions or words are mixed up.

Support: Let pupils copy a partner and repeat just the key word: hold, carry, food, seeds. **Stretch:** Ask pupils to explain why a tree needs a stronger stem than a small flower, using height and wind.

Use: Slides 3–5

17–27 min **Watch and join in** 10 min · Whole class

See and order how water moves from soil to roots, stem and leaves.

YOU DO

1. Show Slide 6 Watch: Water's Journey and remind pupils to listen for soak, carry, food, seeds.
2. Play Video clip 1 (0:00–4:40), pausing to copy soak, carry and food actions.
3. Show Slide 7 cards and order soil water, roots soak, stem carries, leaves make food together.
4. Hand out Worksheet Task D and replay the video and ask pupils to write one job in each box as you watch the video.

STUDENTS DO

1. Watch the video and copy the actions for soak, carry, food, seeds.
2. Order the Slide 7 cards aloud with the teacher.
3. Watch the video and complete Worksheet Task D by writing one job in each box as you watch the video.

Say: Watch where the water goes first. Copy each action when you hear it. Water gathered in the roots then travels up the stem, or trunk. The stem carries water and nutrients to the leaves.

Worked example: Soil water sits in the soil. Roots soak up water and nutrients [3]. Stem carries water upwards. Leaves catch sunshine to make food [3]. Say it in order and do the actions.

Ask: Where does the water go first, and where next? (Water gathered in the roots then travels up the stem, or trunk [3].) · What does the stem carry, and where to? (It carries water and nutrients to the leaves [3].)

Check understanding: Check Task D boxes for soak, carry, food, seeds; if order is wrong, replay the last minute and reorder the cards.

Support: Give the four key words orally and let pupils write just one word per box. **Stretch:** Ask pupils to link two actions in order, such as roots soak then stem carries, in one sentence.

Use: Slides 6–7, Video clip 1 (0:00–4:40), Worksheet Task D

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27–47 min **Main activity** 20 min · Pairs

Identify the four parts on a real plant and say one job for each.

YOU DO

1. Show Slide 9 Your task and read the three steps aloud.
2. Model tipping one plant gently on the mat and finding roots with a glass.
3. Model placing sticky labels and saying one job for each part in own words.
4. Circulate, ask for jobs, and remind pupils to handle plants gently.

STUDENTS DO

1. Tip plant gently, use magnifying glass to find all four parts.
2. Put sticky labels on roots, stem, leaves and flowers.
3. Take turns telling the partner one job for each part in own words.

Say: Tip the plant gently on the mat and look with the glass. Put a sticky label on roots, stem, leaves and flowers. Tell your partner one job for each part. Be a plant detective with your partner and find all four jobs.

Worked example: Point to roots under the soil and say: Roots hold the plant up and take in water and nutrients from the soil [3]. Point up the stem and say: Stem holds up the plant and carries water to the leaves [4]. Point to leaves and say: Leaves take in sunshine and turn it into food [4]. Point to flowers and say: Seeds come from the flower part [4].

Ask: Show me the roots. What do they do? (They keep the plant in the ground and take in water from the soil [4].) · What would happen if the roots could not get water? (The stem could not carry water up, leaves could not make food, plant would wilt.)

Check understanding: Each pair holds up their labelled plant and says all four jobs; revisit any missing label together.

Support: Give a simple diagram with arrows and part words to match to the real plant while looking. **Stretch:** Ask pupils to predict what would happen to the rest of the plant if the roots could not get water, and explain why.

Use: Slide 9

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47–60 min **Plenary** 13 min · Whole class

Check learning on part jobs and the trunk as a stem.

YOU DO

1. Show Slide 10 and share that there are 390,000+ kinds of plants in the world [3].
2. Show Slide 11 vote and take a class vote on which loss would hurt most.
3. Show Slide 12 Quick quiz and ask the three questions with actions.
4. Return to Slide 2 objectives and tick off what pupils can now do.

STUDENTS DO

1. Vote for which part matters most and give a reason using its job.
2. Answer the quick quiz aloud with actions.
3. Self-check against I can point to all four parts and say one job for each.

Say: Flowering plants use roots, stems, leaves and flowers to live and grow. If a plant lost one part, which loss would hurt most? Tell your neighbour your choice and one reason using its job.

Worked example: Vote: Roots that hold and soak — without them no water gets in [4]. Stem that holds and carries — without it water cannot reach leaves [4]. Leaves that make food — without them no food to grow [4]. Flowers that make seeds — without them no new plants [5].

Ask: What do roots do? (Hold the plant up and take in water [from the soil] [4].) · What does the stem carry, and where to? (Carries water up to the leaves [4].) · What do leaves and flowers do? (Leaves catch sunshine to make food; flowers are where seeds develop [3].)

Check understanding: Mini whiteboards or fingers for quiz answers; reteach any job with its action if answers are split.

Support: Show Slide 3 cards again so pupils can match word and picture while answering. **Stretch:** Ask winners to make up a new clue for bingo style calling using the same jobs in different words.

Use: Slides 10–12

Common mistakes

Mistake	How to spot it	How to fix it
Thinking roots only hold the plant and do not take in water.	Pupil says roots just stop it falling over.	Point to roots and repeat that they take in water and nutrients from the soil as well as holding it up [3].
Thinking the stem only holds the plant and does not carry water.	Pupil misses the carry job in labelling or quiz.	Trace up the stem with a finger and repeat that it carries water to the leaves [4].
Thinking flowers are just pretty and do not make anything.	Pupil says flowers are only for colour.	Show flower and seeds and repeat that flowers are where the seeds develop [3] and produce seeds which form new plants [5].

Support

- Give a simple diagram with arrows and part words to match to the real plant while looking.

Stretch

- Ask pupils to predict what would happen to the rest of the plant if the roots could not get water, and explain why.

For the LSE or teaching assistant

Stay with the plant detective table; help match diagram words to real parts and prompt one job word: hold, carry, food, seeds.

Safety

- Wash hands after touching soil and plants, do not put soil or plant parts in the mouth, check for skin allergies before handling.

Check for understanding

Question	Answer
What do roots do?	Hold the plant up and take in water from the soil.
How is a tree trunk like a stem?	It holds the tree up and carries water, only stronger and woody.
What do leaves do and where do seeds come from?	Leaves catch sunshine to make food; seeds come from the flower part.

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