



Lesson 1: Being a plant detective

- What are we going to do?
 - Walk around a park, or a backyard
 - Observe plants you see on your walk
 - Discuss the basic needs of plants
 - Draw pictures of plants to show what you see and think about plants
- What will we need?
 - Paper
 - Pens or pencils
 - A device for taking photos (optional)

Lesson 1: Being a plant detective



With an adult, wander around a backyard, or a park.

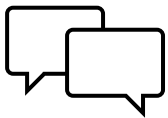


Observe different types of plants that grow there.

Before the walk	During the walk	After the walk
<p>Discuss, wonder, write and draw.</p> <ul style="list-style-type: none">Where do you see plants?What places have no plants?Why do you think so?	<ul style="list-style-type: none">Notice and identify as many different plants as possibleDon't forget to look up high, at eye level and on the ground as you search for plants.<i>Optional:</i> Take photos of the different plants that you identify	<ul style="list-style-type: none">List and discuss the different plants that you found.Describe the different sizes, colours and leaf shapes.Record the plants (words and/or drawings/photographs) that were seen. Keep these pictures for later.

Lesson 1: Being a plant detective

Wondering about plants



Discuss

- What do you think plants need to help them to grow?
- What does a plant look like if it is growing well (healthy)? Why do you think that?
- How can we tell if a plant is not healthy?
- What might a plant need to stay healthy?



Draw

- Draw a plant that is growing well.
- Don't forget to draw all parts of the plant!
- Label your drawing with what a plant needs to grow
- Keep these drawings for later.

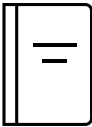
Lesson 2: Plant investigations

- What are we going to do?
 - Discuss what things might affect plant growth
 - Set up an investigation about what plants need to stay healthy
 - Discuss how to measure plant growth
 - Use your senses to observe and measure plant growth
 - Draw your predictions
- What will we need?
 - Paper,
 - Pens, pencils
 - Markers
 - Plant seedlings
 - One popstick per seedling
 - Small bag of potting mixture or nutrient-rich soil
 - Sand (optional)
 - Small pots
 - Self-adhesive labels (or paper and sticky tape)
 - 1 small measuring cup or water mister
 - Device for taking photos (optional)

See slide notes for additional guidance

Lesson 2: Plant investigations

Wondering about young plants



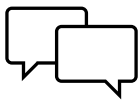
- Find the drawing you made last lesson.
- Read the things you wrote about what plants need to grow and stay healthy.



- Look at some young plants. These are called seedlings.
- What do you notice about the seedlings?

Setting up the investigation

You are going to investigate whether plants need water, light, and space to grow.



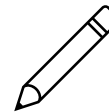
To help you plan your investigation, discuss:

- Where could we put the plants to make sure they have light?
- What might happen if they stay in direct sunlight for too long?
- How much water will we give the plants?
- What might happen if we water them too much?



With an adult, decide what you will investigate. You could investigate one or more of these things:

- Do plants need **water** to grow and stay healthy?
- Do plants need **light** to grow and stay healthy?
- Do plants need **space** to grow and stay healthy?



Once you have decided what to investigate, label the seedlings. For example.

- ‘Water’, ‘No water’
- ‘Light’, ‘Dark’

Now that you have labelled each seedling, you and an adult can decide where to put each seedling.

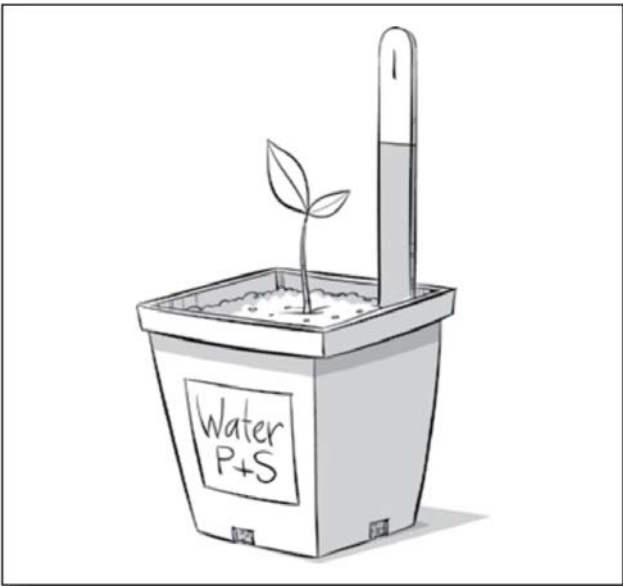


Water all seedlings except the one labelled ‘No water’.

Optional: take a photo of each seedling including its label




See slide notes for safety note

Lesson 2: Plant investigations



Measuring the height of a seedling

Measure each seedling

	With the help of an adult, write the number '1' at the top of a popstick to show it is the first measurement or week one. Write a label on the popstick, to match the label on the seedling.
	<p>To get ready to measure the height of a plant, think about:</p> <ul style="list-style-type: none">• How should I hold the popstick?• What would happen if I pushed it into the ground? How would that change the measurements? Would that be fair?• What would happen if I held it above the ground? How would that change the measurements? Would that be fair?• How will we judge the top of the plant? Will it be the top of the stem or the top of the highest leaf?• Why is it important for everyone to do it the same each time?
	Use a different popstick to measure each plant. Use a marker pen to mark the height with a line. Colour beneath the line.
	Put the popstick in a safe place. You'll need this again in Lesson 5.

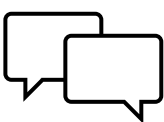
You will be measuring the length of your seedlings each week for 4 weeks, using popsticks.

Note which day of the week it is. You will measure your seedlings on this day each week.

(If today is Monday, measure the length of your seedlings every Monday)

See slide notes for safety note

Making predictions






- Copy or print the investigation table on the next slide.
- Complete the investigation table and column headings with ‘water’, ‘light’, ‘soil’ or ‘space’. Draw what the seedlings look like today, and what you think it will look like in three weeks.
- Discuss how drawing just one picture to represent them both is appropriate since they have been kept in the same conditions until now.

PrimaryConnections®
Growing well!

Our plant predictions

Team members' names: Liz + Ben Date: 1 May

Do plants need water to grow and stay healthy?

What our plant looks like today.	What we think will happen to our plant with <u>water</u> .	What we think will happen to our plant with <u>no water</u> .
		

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Lesson 2: Plant investigations

Our plant predictions

Names: _____ Date: _____

Do plants need _____ to grow and stay healthy?

<div>What our plant looks like today</div>	<div>What we think will happen to our plant with _____</div>	<div>What we think will happen to our plant with _____</div>
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Lesson 3: Parts of a plant

What are we going to do?

- Observe and draw the features of a plant
- Discuss how different parts of the plant contribute to helping it grow and stay healthy
- Create an annotated drawing of a plant
- Measure each seedling

What will we need?

- 1 popstick per seedling, for measuring
- A potted seedling (not part of the investigation) or an image (such as those on the next slide)
- Small paintbrush, or small soft broom.
- Optional: a device for taking photos

Lesson 3: Parts of a plant



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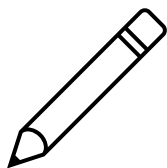
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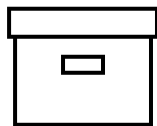
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Lesson 3: Parts of a plant

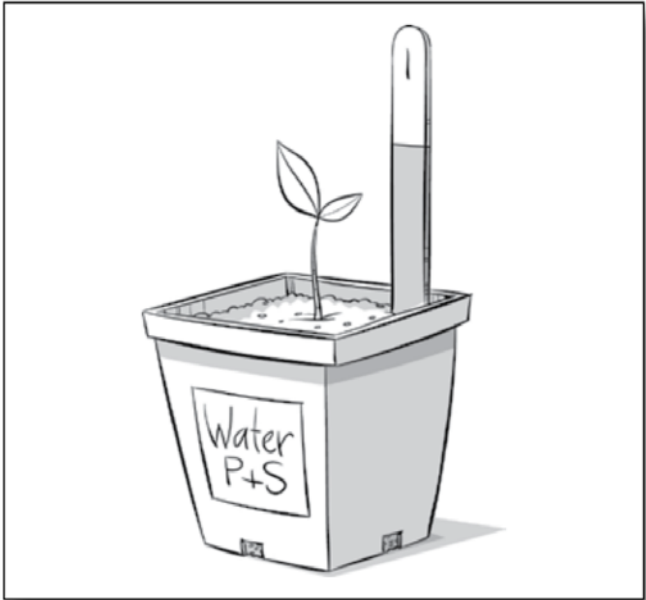
Measure each seedling



- Make observations and measurements of your seedlings
 - Remember to write the number ‘2’ at the top of the popstick to show that it is week two.



- Put the popstick in a safe place, with the ‘week one’ popsticks. You’ll need these again in Lesson 5.
- *Optional:* Take photos of each seedling to keep a visual record of plants’ growth.

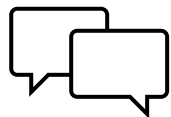


Measuring the height of a seedling

Observe the plant parts



- Look at the extra seedling, or look at images of plants.



- Discuss your answers to these questions with an adult
- How do you know each of these is a plant?
 - What parts of the plant can you see?
 - What do you think each part is used for?



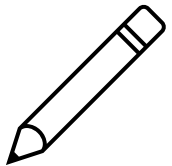
- Using the extra seedling, and with the help of an adult, carefully pull the plant from the pot and brush the soil away with a small brush.



- Avoid touching the seedling, just observe with your eyes

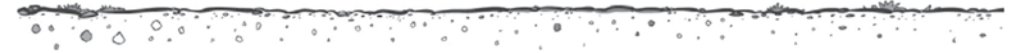
Lesson 3: Parts of a plant

Draw what you see



- Draw what you can see growing above soil level and below soil level
- Annotate your drawing by writing words to name the parts of the plant.

Above the ground



Below the ground

Lesson 4: Up it goes!

What will we be doing?

- Discuss where the water poured onto a plant goes
- Write and draw ideas about roots taking water up to stems and leaves
- Use drawings to represent watered plants
- Measure each seedling

What will we need?

- Paper and pencils
- 1 popstick per seedling, for measuring
- 1 clear and strong container, half full of water
- 1 teaspoon of red or blue food colouring
- 1 stalk of celery, cut with a sharp implement
- Several small pieces of celery, cut with a sharp implement
- *Optional:* a device for taking photos

Lesson 4: Up it goes!

Set up the celery



- Either in the morning, or the night before, at a teaspoon of food dye to the water in the strong container.



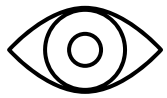
- Place a cut celery stalk in the clear, strong container half full of coloured water
 - Optional: take a photo and note the time the photo was taken



- Place the celery in coloured water in a location where it will not be disturbed.

Lesson 4: Up it goes!

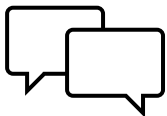
Observe the celery



- After several hours (at least 5 hours), observe the celery in coloured water.



- Hold a small piece of cut celery (not coloured) in your hand. Look at it closely.



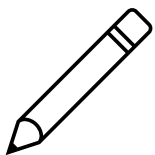
- Discuss
 - Compare the celery in your hand to the celery in the coloured water. What can you see that is different about the celery?
 - What do you think has happened to the celery?
 - What do you think the change tells us about how the water gets from the roots to the stems and leaves of plants?

Lesson 4: Up it goes!

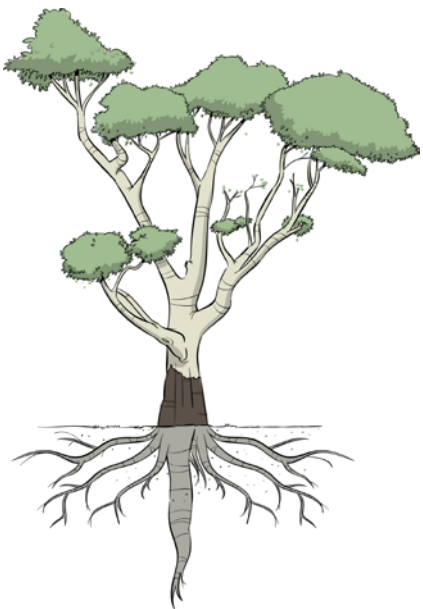
Think and draw



- What have you learned about plants?
- What are the different parts of plants that you have observed?
- What do you think different parts of a plant might do?
- Why does a plant need water?
- Do you need to water plants in the garden on rainy days? Why or why not?
- Where does the water go when we pour water on a plant?



Draw a picture of a tree. Draw where the water goes to help the tree grow and stay healthy

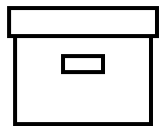


Lesson 4: Up it goes!

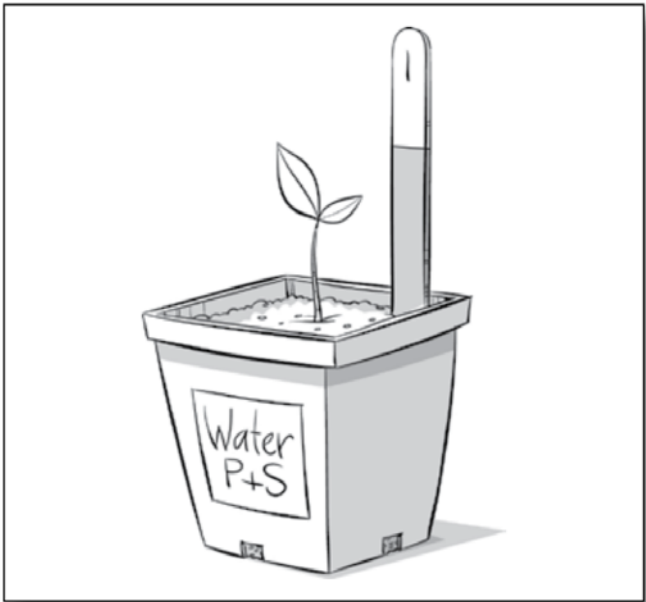
Measure each seedling



- Make observations and measurements of your seedlings
Remember to write the number ‘3’ at the top of the popstick to show that it is week three.



- Put the popstick in a safe place, with the ‘week one’ and ‘week two’ popsticks. You’ll need these again in Lesson 5.
- *Optional:* Take photos of each seedling to keep a visual record of plants’ growth.



Measuring the height of a seedling

Lesson 5: What plants need

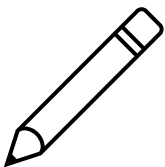
What will we be doing?

- Compare results of the investigations with predictions
- Discuss popstick measurements and compare results
- Explain the basic needs for plant growth
- Present information in a graph

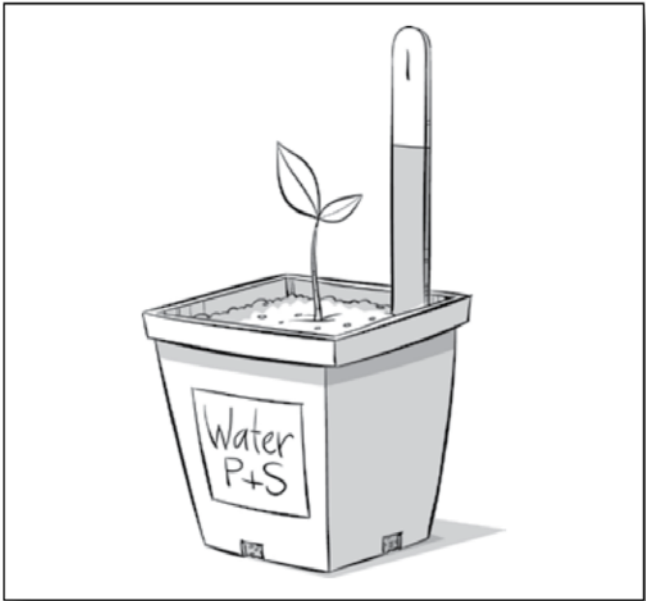
What will we need?

- Paper and pencils
- 1 popstick per seedling, for measuring
- All the popsticks you have used to measure the seedlings
- *Optional:* the photos you took of your seedlings
- *Optional:* a device for taking photos
- *Optional:* PVA glue

Measure each seedling



- Make observations and measurements of your seedlings.
- Remember to write the number ‘4’ at the top of the popstick to show that it is week four.
- *Optional:* Take photos of each seedling to keep a visual record of plants’ growth.

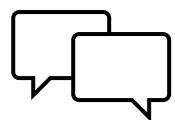


Measuring the height of a seedling

Get ready to look at your data. Put all the popsticks you have used to measure the seedlings (week one, week two, week three, and week four) in one place.

Lesson 5: What plants need

Compare the plants with your predictions



- In lesson 2, when you labelled your seedlings, what did you think the plants would look like by this time?
- Compare your predictions (Lesson 1) to your observations in this lesson. What are the similarities and differences? Why do you think that is?
- What have you learned about the needs of plants?

Lesson 5: What plants need

Make a graph

Why do we use a graph?

We use a **graph** to organise information so we can look for patterns.



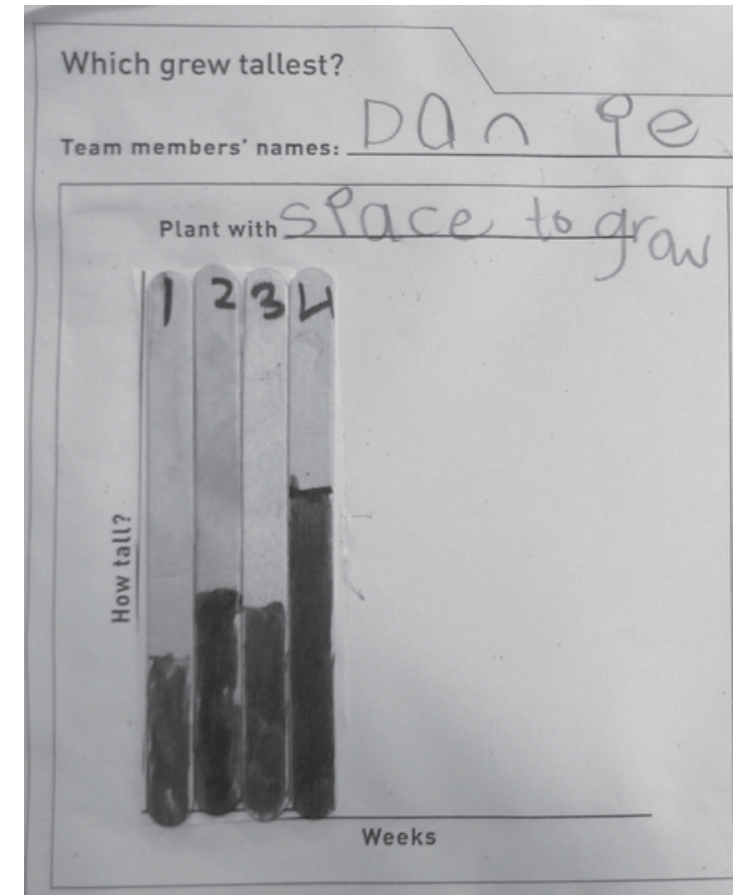
Place your popsticks in order from 1-4. Look at where you coloured the sticks.

Do you notice any patterns?



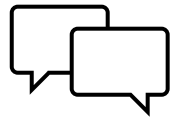
Use your popsticks to make a graph, by gluing them to paper (see image), or drawing your popsticks in order on paper.

Optional: Use the photos taken throughout the investigation to create a photo timeline. Compare it to the graph.

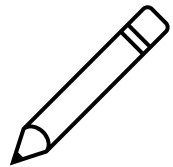


Lesson 5: What plants need

Your graph



- What does your graph tell you about how your plants grew?
- Which plant grew the tallest?
- Which plant looked healthier at the end of the four weeks?
- Look at your drawings from Lesson 1. What have you learned about what plants need since then?



- Complete this sentence
'Plants need _____ to grow and be healthy.'