Teaching Activity
Plants are living things too!

Science understanding - Biological sciences, 100-109
Science inquiry - Planning and conducting, 100-109
Science inquiry - Processing, modelling and analysing, 100-109
Science inquiry - Evaluating, 100-109
Science inquiry - Communicating, 100-109
Curriculum code: AC9S3U01, AC9S3I03, AC9S3I04, ACSSU044, ACSIS054, ACSIS055, ACSIS057, ACSIS215 <u>Select state curriculum</u>

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Key concepts and skills

- Understanding that plants grow from seeds
- Knowing that plants require non-living things in the right amounts for the plant to grow
- Recognising that plants are living things

Common errors and misconceptions

- Thinking that plants are not living things
- Thinking that seeds are not living things

Before you begin

- Prepare copies of the <u>Plants are living things too worksheet</u>
- Complete your school's risk assessment
- Prepare materials for the growing beans practical student activity:
  - 4 x pre-cut clear plastic drink bottles about 10–15 cm tall
  - soil
  - sand
  - water for the plants – around 15–30 ml each time you water, but this will be dependent on weather and soil type (ensure that soil is not soaked)
  - beans (or other fast-growing seeds like cress)
  - sunny window
  - shaded area
  - ruler

Note: the above amounts are given per group (you will need to divide the class into groups of 3–4 students). You should also ideally soak the beans overnight beforehand to speed up germination.

Activities

Learning intention

To recognise what living and non-living things are required to grow beans.

Tuning in

⬚ Ask

- How do you know that plants are living things?
- What are the features of plants?

How do you plan to use this
resource? (Select the most
relevant.)* ⌄

Write

student answers on the board.

Show

This video shows young sunflowers following the sun's rays. Retrieved from YouTube at: https://www.youtube.com/watch?v=IwI0tGzr4S8.

💬 Discuss

how plants grow, move and are sensitive to light. This is seen in the video when the sunflowers moved to follow the sun and face the right direction to attract bees. Bees help plants to reproduce by carrying pollen on their fluffy legs from one plant to another.

Highlight that plants are living things because they grow, move, respond to stimuli (e.g., sun, wind, water, touch) and that they can reproduce. Reflect on initial answers.

Task 1: flowering plant

💬 Tell

students to draw a picture of a flowering plant on the Plants are living things too worksheet. Draw an example ensuring all the parts of the plant that need to be labelled are included. For example,
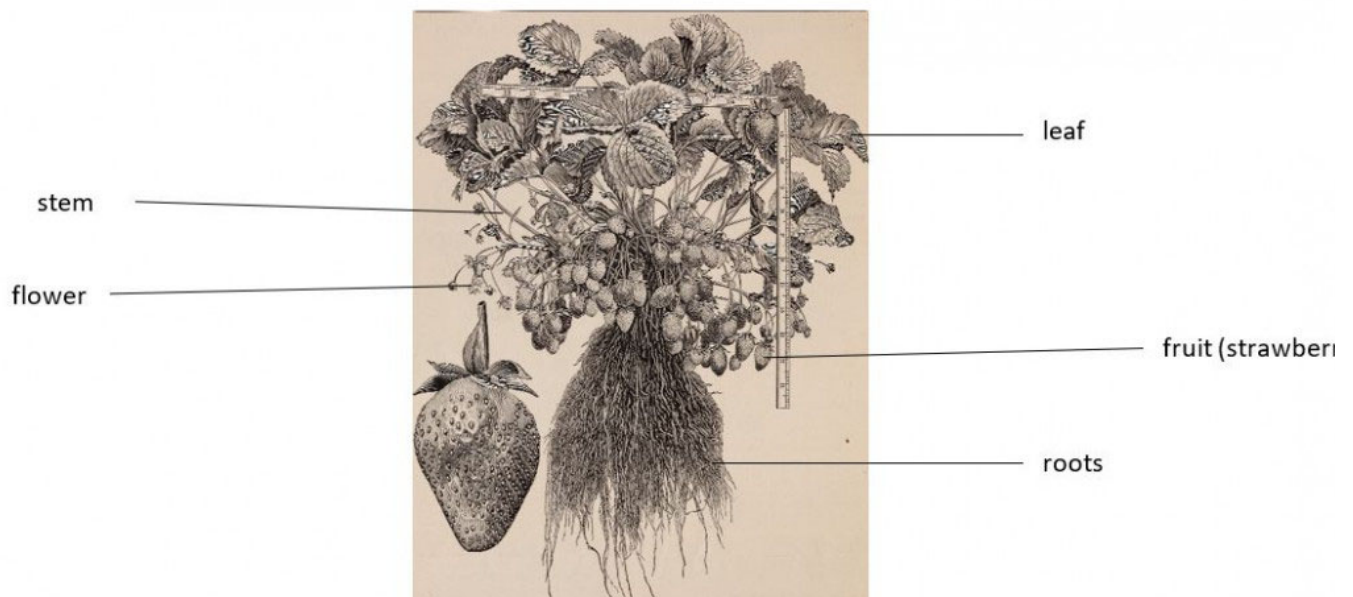
Consider adding a bee on one of the fl[...]

How do you plan to use this resource? (Select the most relevant.)*

Note: while students are completing this activity, take a group of 3–4 students to begin the next task and rotate until each group has completed it.

💻 Explain

to students that:
- nutrients are something that allows living things survive. Use the example of how some people take vitamins to support their health
- bees land on flowers and take the pollen (the yellow powder in flowers) on their fluffy legs from one flower to another. Explain that this goes into the flower and combines with another part of the flower to make a seed. The flower then dies, and a fruit is formed around the seeds.

💬 Tell

students that the worksheet has a number of informative labels, that students can cut out and add to the drawing. Add additional labels if students come up with other suitable options.

Note: omit the 'air' label if your students are not ready for this yet.

💬 Tell

students that when they are finished labelling the drawing, they now have them write an L (for living thing) or N (for not a living thing) next to each label.

Living	Non-living
leaf	sun
soil	soil
stem	water
flower	air
roots	

Discuss

the drawings and how students have labelled the non-living and living things.

Note: soil is made up of decaying living matter (leaves, fruit, animal parts) as well and tiny pieces of non-living rocks and minerals.

Task 2: bean experiment

💬 Tell

students that they are to grow bean plants in different conditions. Explain to students that conditions means the types of things that plants are exposed e.g., the amount of light, the amount of water, the soil type.

Place

students in groups of 3–4 and rotate th   ctivity.

How do you plan to use this
resource? (Select the most
relevant.)*

Guide

each group through the method and allow them to choose two tests. While the students are preparing the plants, highlight the importance of keeping everything the same, except for the one thing that they are testing.

💬 Tell

students that they should answer the first question in the worksheet once they finish setting up the experiment. (This is so students can form a prediction for the experiment.) Allow plants to grow over 2 to 3 weeks depending on your schedule, and how fast the plants grow. Every week students should complete the table in the worksheet. At the end of the three weeks have student's complete questions after the results table.

👁 Show   ↗

Grow bean plants experiment

Materials

- 4 x pre-cut clear plastic drink bottles about 10–15 cm tall
- soil
- sand
- water for the plants – around 15–30 ml each time you water, but this will be dependent on weather and soil type (ensure that soil is not soaked)
- beans (or other fast-growing seeds like cress)
- sunny window
- shaded area
- ruler

Notes:

- the above amounts are given per group
- soak the beans overnight beforehand to speed up germination.

Method

Choose to do 2 of the following:

<u>Does sunlight affect bean growth?</u>

1. Fill about ½ – ¾ of soil in 2 of the drink bottles. Ensure both have the same amount of soil.
2. Place 2 or 3 seeds at the edge of each container so that their growth will be visible.
3. Label one container 'sunlight' and the second container 'shade'. Write your names on the labels.
4. Place the sunlight container in the sunny window and the second container in the shaded area.
5. At the same time every week check the seed growth, measure the root and stem length and record observations in the table.
6. Check the plants have enough water every second day and ensure both plants are given the same amount.

<u>Can beans grow in sandy soil?</u>

1. In one container mix 50:50 of sand to soil to fill the bottle to about ½ – ¾ full.
2. Fill the second container to the same amount of soil as the first.
3. Place 2 or 3 seeds at the edge of each container so that their growth will be visible.
4. Label one container 'sandy soil' and the second container 'soil (no sand)'. Write your names on the labels.
5. Place both containers in the window.
6. At the same time, every week check the seed growth, measure the root and stem length and record observations in the table.
7. Check the plants have enough water every second day and ensure both plants are given the same amount.

<u>How does the amount of water affect bean growth?</u>

1. Fill about ½ – ¾ of soil in two of the dr   ount of soil.
2. Place 2 or 3 seeds at the edge of each   le.
3. Label one container 'dry' and the secor   labels.
4. Place the containers in the sunny window.

How do you plan to use this resource? (Select the most relevant.)*

5. At the same time every week to check the seed growth, measure the root and stem length and record observations in the table.
6. In the dry container only add *35 ml water every 5 days. In the wet container add *15 ml water every second day.

*You will need to determine the exact amount based on weather and soil type, but for this example, keep the amount of water the same each time to ensure that it is a fair test.

Prerequisites

- Basic understanding of the differences between living and non-living things
- Basic understanding of the features of living things (e.g., grow, move, respond to stimuli and reproduce)

Related activities at the level

- [Life cycles](#)

How do you plan to use this resource? (Select the most relevant.)*