

Plants – Parts of a plant and plant variety

Name _____

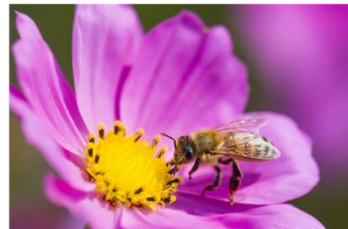
Class _____

What you will need for this lesson: a small plastic container like a cup or small box, some earth or soil from the garden, some cress seeds and a speaker, sound system or some kind like a radio.

You will also need a pen, a pencil and if you have it, access to a computer, tablet or iPad.

LESSON STARTER

Look at the pictures below. Think of some similarities and also some differences between them? Write your answers in the table below them.



Similarities	Differences



When you've finished, watch the video to see how many you got right.

THE INVESTIGATION

This investigation uses soil or earth. If you do not have a garden, ask an adult to help you find a small amount in a local communal place.



Let us look at the method.

1. Fill your container half way with soil from the garden or communal area.
2. Place seeds inside the soil.
3. Water the seeds and allow the seeds to germinate and grow.
4. Once grown you can subject the plants to different types of music using a speaker or radio.
5. Remember to wash your hands when handling soil!

How long did your cress seeds take to grow? _____

Now it will be time for the sound element of your experiment. If you cannot find a radio or speaker, then you might want to see if you can put your cup next to the television, which has a speaker within it. Please ask an adult to help you decide where might be a good place.

What we learned!



We know that most plants react well or badly to their surroundings. Your seeds will have germinated because they had the nutrients (food) from the soil, some water, which you will need to add and some sunshine.

WORKING SCIENTIFICALLY

Our next focus is about working scientifically. All scientists apply these principles whenever they are investigating anything and we've divided them into different skill units.

Find the section your teacher has asked you to focus on and answer the questions in the relevant section.

A. Planning or

B. Presenting and analysing data or

C. Evaluation

A. PLANNING

Every scientist wants to solve a problem and so takes the following steps

1. **Decides on a question that needs answering.** e.g. do the cress seeds respond well to music?
2. **Decides what the independent variable (the thing that is changed) might be in order to work out the answer to the question** e.g. we will have 3 different parallel experiments and we will change the type of sound in each, music, spoken word or no sound.
3. **Decides what the dependent variable might be (how to measure the differences in each different example)** e.g. we will measure how much they grow every day.
4. **Last of all decide what elements have to stay the same in order to make it a fair test** e.g. each investigation should have the same components except for the type of sound.

Now using this knowledge, see if you can answer the questions below!

Write below one or more examples of a question you might want to find the answers.

Year 3, 4, 5, and 6 pupils - What might be the independent variable you would use in your investigation, in other words what would be the things that you would change to investigate your question?

Year 4, 5 and 6 pupils - What would be your dependent variable, in other words what would you measure to record the difference?

Year 5 & 6 pupils - What was your control variable, in other words what did you keep the same to make sure that it was a fair test?

Now go and carry out your investigation!

B. PRESENTING & ANALYSING DATA

When scientists carry out investigations, it is really important that they capture data to make sure they can then answer the questions that they have set themselves. The scientist on the video has asked you to complete the following:

Year 3 & 4 pupils – You are carrying out experiments to answer the following question:

Does the type or genre of music affect how quickly my plant grows?

What kind of data would you capture to show what happens and why?

Year 5 & 6 pupils – You are carrying out experiments to answer the following question:

Does the volume of the music affect the height of the plant?

What kind of data would you capture to show what happens and why?

Now carry out your investigation!

C. EVALUATION

Evaluating how an investigation went as well as the data that comes from a science experiment is a really important part of science. It may be that you feel your experiment could have been done better or more thoroughly and it is important to understand this.

Answer the questions below:

Year 3, 4, 5 & 6 pupils: Did your experiment work?

Year 3,4, 5 & 6 pupils: Why? Try and explain your answer using diagrams if it helps.

Year 5 & 6 pupils: Try and explain how you know it did or didn't work.

The science behind the investigation



We know that most plants have the same structure. Although they may look a bit different from one plant to another, their functions remain the same.

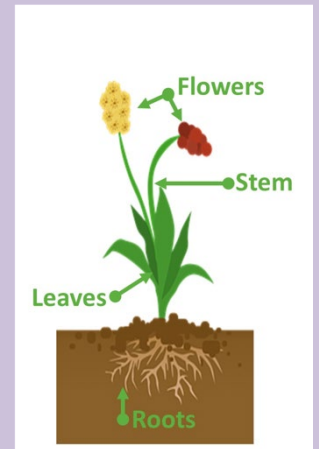
The Shoot: is the part of the plant above the ground

The Stem: holds the plant upright and transports water around the plant.

The Flowers: produce seeds to make new plants

The Leaves: make food using light

The Roots: are below the ground. They anchor the plant and take in water and nutrients from the soil



Your challenge!

Below are pictures of different types of plant. Can you find out one fun fact about the different types. If you can, find the name of one example from each type.

	Type of plants	Fun fact	Example
	Flowering Plants		
	Mosses		
	Sea plants		

Research opportunity

Find out whatever you can about Katherine Esau and create a fact file about her.

Where was she born?

When was she born?

Where did she study?

What important scientific knowledge did she find out and how?



What was your score?

