



# Science

## Plants

# WHAT DO PLANTS NEED TO GROW?



# Meet Quizby!

Can you spot me in the  
**Lesson Presentation?**

The questions that appear will help  
you to think about the key learning  
throughout the lesson.





# Aim

- To design and set up a test to find out what plants need to stay healthy.

# Success Criteria

- I can identify when a plant is healthy.
- I can give my ideas about what plants need to stay healthy.
- I can suggest ways to find out what plants need to stay healthy.



# Remember It

Let's see how many **plants** we can name!



dandelion

daffodil

holly

bramble



Both of these plants have yellow flowers. Do all roses have yellow flowers? What about dandelions?



# Remember It

Let's see how many **plants** we can name!



sunflower

bluebell



Do you know which season bluebells grow in?

X



cypress tree

holly tree

maple tree





# Remember It

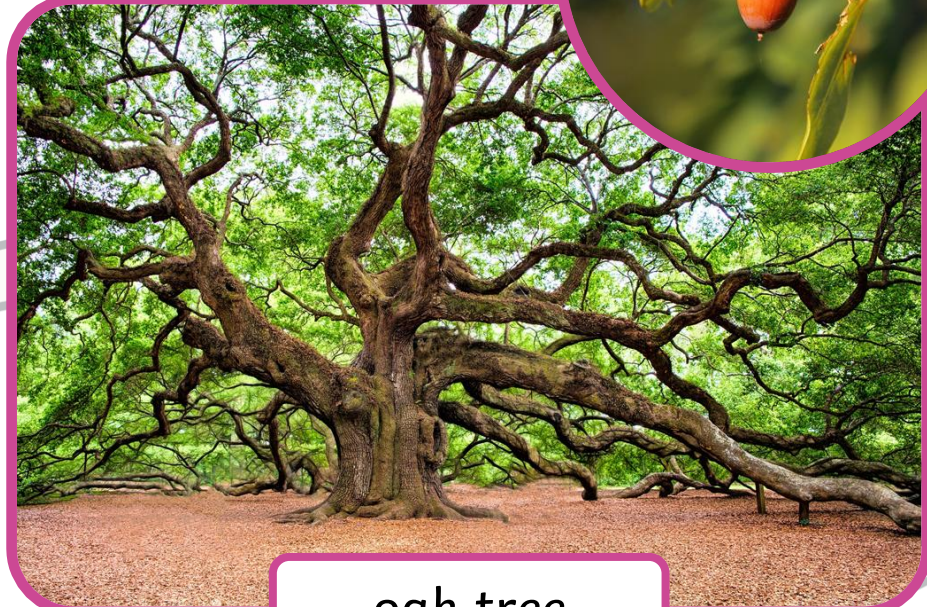
Is each tree **evergreen** or **deciduous**?



cedar tree

**evergreen**

**deciduous**



oak tree

**evergreen**

**deciduous**





# Remember It

Can you name the **parts** of the plant?

flowers

leaves

stem

roots

fruit





# Growing, Growing, Grown

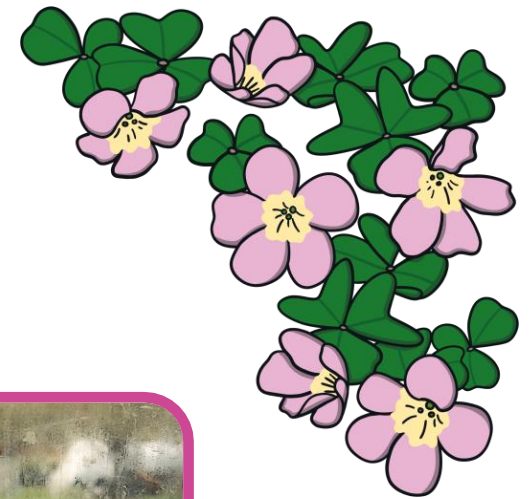
We will be reading this eBook as we learn more about **plants**.



Let's read up to the end of page 6 together.







# Healthy or Not?

Look carefully at these plants.



Which one do you think is **healthy**? Why?

Which one is **not healthy**? How do you know?

What do you think happened to the plant that is **not healthy**?





# What Does a Plant Need to Grow and Stay Healthy?



Do these plants look **healthy** or **not healthy**? Explain why.




What do you think these plants might need to be **healthy**? Let's write a list together of the things we think plants need.



# What Does a Plant Need to Grow and Stay Healthy?

We have ideas about what plants need to grow. How do you think we can find out for **certain**?



We could **test** our ideas!

Scientists **test** their ideas to find out if they are right.





# Testing Our Ideas

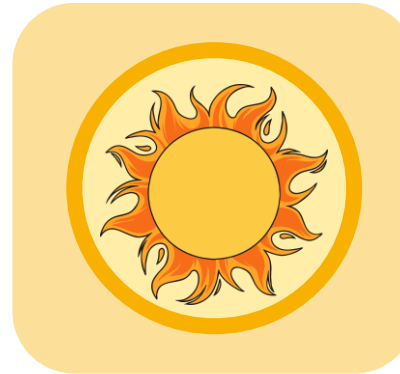
We are going to test whether plants need these things to be healthy:



Water



Soil



Light



The right temperature

**But...** how would we know whether it would have grown **without** each of these things? We would have to test that too!

Discuss what you think we could do with your partner.



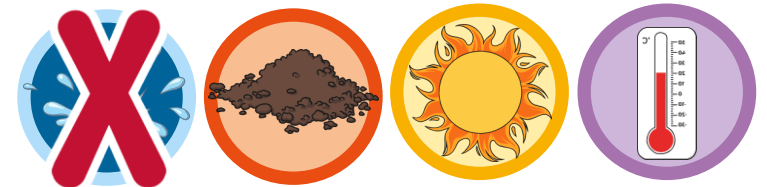
# Testing Our Ideas

To see if our plant would grow well **without** each of these things, we could plant more seeds and remove **one thing we think they need each time**.

We could plant one **without soil**, but give it the right temperature, water and light.



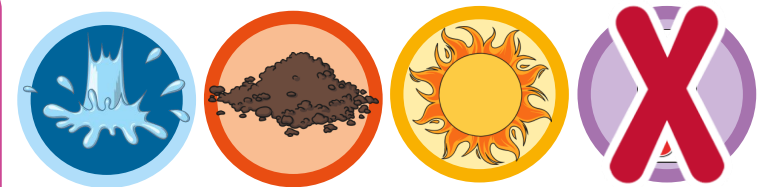
We could plant one and keep it **without water**, but give it soil, light and the right temperature.



We could plant one and keep it in a place **without light**, but give it soil, the right temperature and water.



We could plant one and keep it somewhere **without the right temperature**, but give it soil, light and water.





# Testing Our Ideas

Some types of plants grow much more quickly than others and some types of plants grow better in cooler or drier places.

So, to make our test fair, we will use the **same type of seed** for every plant.

We will observe (look closely and carefully at) our plants over a few weeks to see how they grow.

How will this test show us what a plant needs to grow and stay healthy?  
Discuss with your partner.



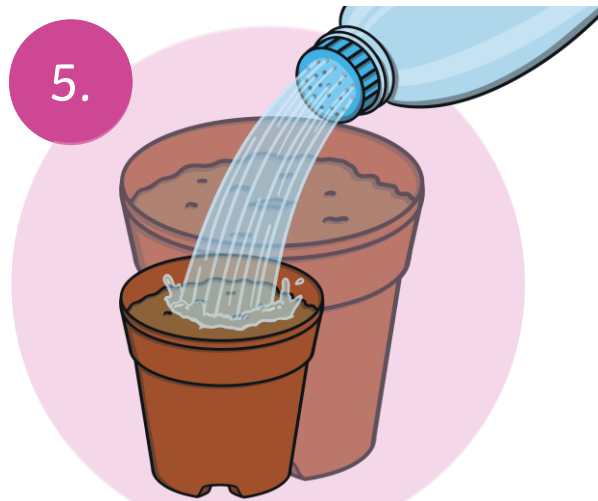
# Setting Up a Test

First, let's prepare the plant that will be given **everything** we think it needs to grow.

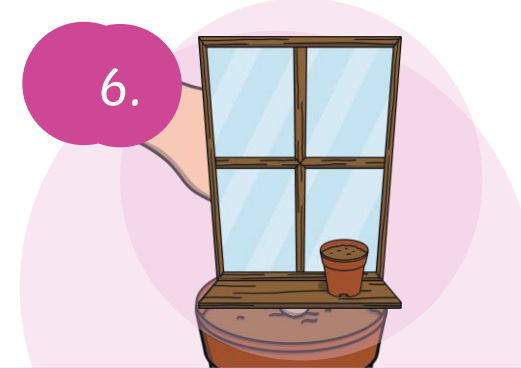
We will observe this plant to see how it grows. We will measure how big it is every week and draw or photograph it for our **Class Plant Diary**.



Cover the seed over with soil.



Water your seed (but not too much).



Once you have planted your seed, label it with the number **1** and your names and put it in our warm, safe place.



# Setting Up a Test

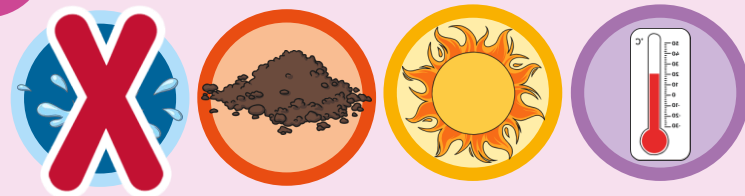
Now, let's plant the other seeds.

This time, we will make sure to miss out one thing each time. Remember to label them with your names **and** its number (from 2-5).

2.



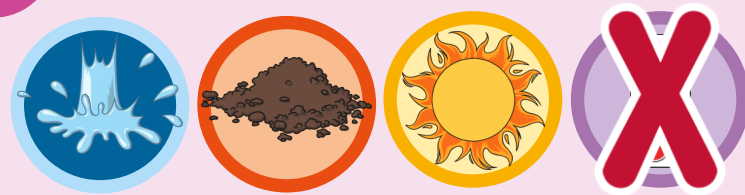
3.



4.



5.



# What We Did

Now that we have planted our seeds and put them in the correct places, we can **record what we did** on the first page of our **What Does a Plant Need to Stay Healthy? Activity Sheet**.

This will help us to know what happened to each plant when we look at them again in a few weeks.





## What Does a Plant Need to Stay Healthy?

To design and set up a test to find out what plants need to stay healthy.

### What We Did

We are testing what a plant needs to grow and stay healthy. We have planted seeds in 5 different pots. Draw a picture showing what each pot will have and write what will be missing for each one.

<p>Pot 1 has soil, water, light and the right temperature.</p> 	<p>Pot 2 will <b>not</b> have _____</p> <p>_____</p>	<p>Pot 3 will <b>not</b> have _____</p> <p>_____</p>
<p>Pot 4 will <b>not</b> have _____</p> <p>_____</p>	<p>Pot 5 will <b>not</b> have _____</p> <p>_____</p>	<p><b>Word Bank</b></p> <p>water</p> <p>soil</p> <p>light</p> <p>the right temperature</p> 





# What Do You Think Will Happen?

Scientists use tests or experiments to try to prove their ideas. To do this, they have to say **what they think will happen** in each part of their test.

What do you think will happen to each of the seeds you planted?

Which ones do you think will grow healthily?

1.



2.



3.



4.



5.



Discuss in your group.



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# What Do You Think Will Happen?


Now, fill in the 'What We Think Will Happen' section of your **What Does a Plant Need to Stay Healthy? Activity Sheet**.

**What Does a Plant Need to Stay Healthy?**

**What We Think Will Happen**

Write what you think will happen to each plant. You can use the word bank to help you.

Pot 1 _____ _____ _____ _____	Pot 2 _____ _____ _____ _____	Pot 3 _____ _____ _____ _____
Pot 4 _____ _____ _____ _____	Pot 5 _____ _____ _____ _____	<b>Word Bank</b> not healthy   healthy   big small   yellow   green brown wilted strong



**Challenge!** Do you think there will be anything about our test that will be tricky to do? Write a sentence on your whiteboard to explain.

\_\_\_\_\_



# Aim



- To design and set up a test to find out what plants need to stay healthy.

# Success Criteria

- I can identify when a plant is healthy.
- I can give my ideas about what plants need to stay healthy.
- I can suggest ways to find out what plants need to stay healthy.






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# Plants: What Do Plants Need to Grow?

<b>Aim</b> Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Performing simple tests. Using their observations and ideas to suggest answers to questions. To design and set up a test to find out what plants need to stay healthy.		<b>Lesson Duration</b> All timings are approximate.	
<b>Success Criteria</b> I can identify when a plant is healthy. I can give my ideas about what plants need to stay healthy. I can suggest ways to find out what plants need to stay healthy.	<b>Key Vocabulary</b> Seed, germination, sunlight, water, temperature, test, scientists, healthy, not healthy.		
<b>Resources That May Need Purchasing</b> Soil Small pots Fast growing seeds such as cress or beans Fully grown plants (one healthy, one beginning to wilt through dehydration) Cotton wool Bulbs or different seeds for class plant	<b>Preparation</b> <b>Lesson Pack</b> <b>What Does a Plant Need to Stay Healthy? Activity Sheet</b> - one per child, or A3 per group <b>Class Plant Diary</b> - one for whole class <b>Knowledge Organiser</b> - per child (this will be used in each lesson)		

**Prior Learning:** In year 1, children learnt the names of a variety of plants, including evergreen and deciduous trees. They also learnt to identify the basic structure of a plant. You may wish to consolidate any Y1 learning, prior to starting this unit, using the [Perfect Plants eBook](#).

## Learning Sequence

	<b>Remember It:</b> Use the <b>Lesson Presentation</b> to recap key learning from Y1, including plant names and the parts of a plant. Allow the children a minute to discuss each answer.	
	<b>Growing, Growing, Grown:</b> Introduce children to the <b>Growing, Growing, Grown eBook</b> , which they will be using to learn more about plants during this unit. Discuss the front cover and contents page and read up to the end of page 6 together. Introduce the <b>Knowledge Organisers</b> and look at the key vocabulary together.	
	<b>Healthy or Not?</b> Show the children the examples of the healthy and wilting plant (if not using real plants, use the photographs on the <b>Lesson Presentation</b> ). Allow the children a little time to look carefully at each plant, then ask the key questions shown. Discuss with the children how they can identify a healthy plant.  <b>Can the children identify a healthy plant and explain how they know it is healthy?</b>	
	<b>What Does a Plant Need to Grow and Stay Healthy?</b> Look at the examples of seeds and unhealthy plants on the <b>Lesson Presentation</b> . Ask the children to discuss in pairs what they think a plant needs to grow and stay healthy and to write their ideas on their whiteboards. Ask the children to share their ideas and make a note of these somewhere visible.  Ask: How can we find out what a plant needs to grow and stay healthy?  Discuss why growing plants under different conditions would be a good way to find out. Together with the children, choose the conditions they think are most important. These should include light, water, the right temperature and soil. Make a note of these for use in future lessons.  <b>Can the children explain what they think a plant needs to grow and stay healthy?</b>	
	<b>Testing Our Ideas:</b> Discuss with the children how they can set up their test, using the prompts on the <b>Lesson Presentation</b> .  <b>Can the children suggest ways to carry out the test?</b>	

	<p><b>Setting Up a Test:</b> Children plant their seeds in mixed groups. Firstly, they can plant one ‘everything’ pot that will have everything the children think that plants need. They can then plant 4 more pots, with one pot for each condition they are testing (no light, no water, the wrong temperature, no soil). Put each pot into your chosen place for each set of conditions. You will have the following plants:</p> <ol style="list-style-type: none"> <li>1. A plant planted in soil, in a warm place, with light and with water.</li> <li>2. A plant with no soil (e.g. planted in cotton wool) in a warm place, with light and with water.</li> <li>3. A plant planted in soil, in a warm place, with light, that stays unwatered.</li> <li>4. A plant planted in soil, in a warm place, with water, but no light.</li> <li>5. A plant planted in soil, with light and water, but kept in a cold place.</li> </ol> <p><b>Note: Ensure that children have adequate adult supervision while planting the seeds. In preparation for Lesson 4, you may find it useful to also plant the same test seeds yourself separately. These can then be used to model observations and record results.</b></p> <p>Take a photograph of the first plant with the correct conditions as it is today, to print and add to the <b>Class Plant Diary</b> in the starting week. It is suggested that this plant is observed over a period of a few months.</p>	
	<p><b>What We Did:</b> Children complete the first page of the <b>What Does a Plant Need to Stay Healthy? Activity Sheet</b>, drawing pictures to show what each pot will have and writing what each one will be missing. You may wish for children to complete this independently, or enlarge to A3 for use as a small group task.</p>	
	<p><b>What Do We Think Will Happen?</b> Ask the children to discuss their ideas about what they think will happen for each pot, using the prompts on the <b>Lesson Presentation</b>. They can then fill in the ‘What We Think Will Happen’ section of the <b>What Does a Plant Need to Stay Healthy? Activity Sheet</b>. They will come back to their ideas in a future lesson.</p> <p><b>Note: Depending on your school’s preference, you may wish to begin to introduce the term ‘prediction’.</b></p> <p><b>Can the children give their opinions on what they think will happen and why?</b></p>	

**Explore it**

**Grow it:** If outside space allows, children could plant and grow their own fruit or vegetables, such as strawberries, beans or carrots, and research how to look after these accordingly. Smaller plants could be grown indoors.

**Observe it:** Children observe plants that grow in their local area and the conditions they grow in (lots of light, wet weather, etc.). Children could record their observations through photographs or drawings.

**Reason it**

Children discuss **Reasoning Card 1 What Do Plants Need to Grow?** Children explain how they know a plant is healthy or unhealthy and how to find out if lots of water would help a plant to grow healthily.



## Assessment

<b>Scientific Knowledge</b>	
<b>Working Towards the Expected Level</b> With support, children can suggest what they think a plant needs to grow and stay healthy.	Children:
<b>Working At the Expected Level</b> Children can suggest what they think a plant needs to grow and stay healthy.	Children:
<b>Working At Greater Depth</b> Children can suggest what they think a plant needs to grow and stay healthy. They begin to understand how a lack of these things can affect a plant. They can also notice links between cause and effect with support.	Children:
<b>Working Scientifically</b>	
<b>Working Towards the Expected Level</b> With support, children can begin to recognise ways in which they might answer scientific questions. They can carry out simple practical tests, using simple equipment.	Children:
<b>Working At the Expected Level</b> Children can begin to recognise ways in which they might answer scientific questions. They can carry out simple practical tests, using simple equipment.	Children:
<b>Working At Greater Depth</b> Children can recognise ways in which they might answer scientific questions and suggest ways to test these. They can independently carry out simple practical tests, using simple equipment.	Children:

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				Delivered By:			Support:		
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I can identify when a plant is healthy.				Notes/Evidence					
I can give my ideas about what plants need to stay healthy.									
I can suggest ways to find out what plants need to stay healthy.									
Next Steps									
<ul style="list-style-type: none"> <li>_____</li> <li>_____</li> </ul>									

<b>T</b>	Teacher	<b>I</b>	Independent
<b>PPA</b>	Planning, Preparation and Assessment	<b>AL</b>	Adult Led
<b>S</b>	Supply	<b>GP</b>	Guided Practice

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