



# Science

Plants

# WHAT'S INSIDE A SEED?



# 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 look closely at the parts of a seed that will grow into a plant and explain how it will germinate.

# Success Criteria

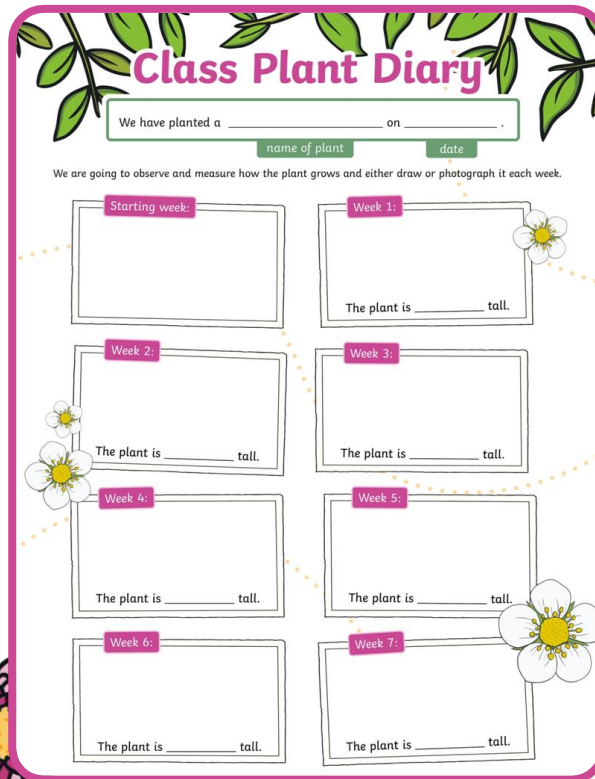
- I can identify the parts of a seed that will grow into a plant.
- I can explain what a seed needs to begin to grow.
- I can explain what 'germination' means.





# Remember It

Let's look at our class plant and see how it is growing. We can measure its growth and draw or photograph it for our **Class Plant Diary** from Lesson 1!



**Class Plant Diary**

We have planted a \_\_\_\_\_ on \_\_\_\_\_.

name of plant date

We are going to observe and measure how the plant grows and either draw or photograph it each week.

**Starting week:**

The plant is \_\_\_\_\_ tall.

**Week 1:**

The plant is \_\_\_\_\_ tall.

**Week 2:**

The plant is \_\_\_\_\_ tall.

**Week 3:**

The plant is \_\_\_\_\_ tall.

**Week 4:**

The plant is \_\_\_\_\_ tall.

**Week 5:**

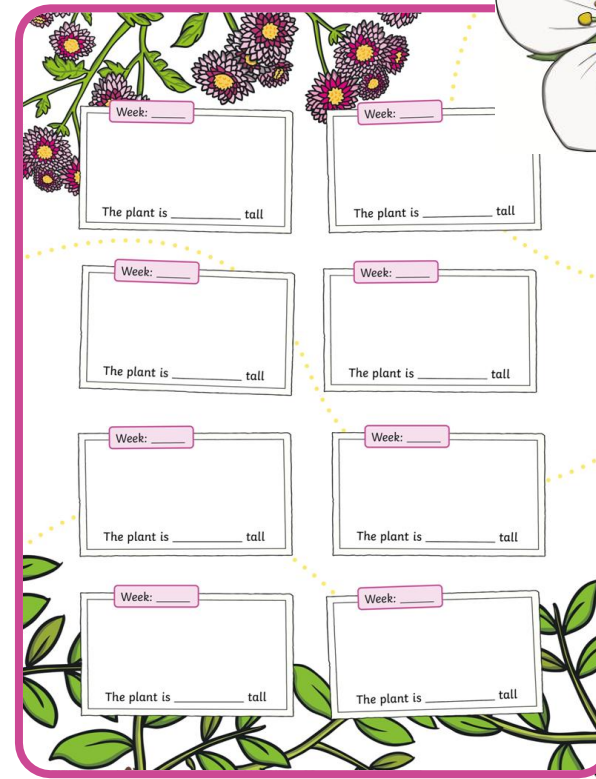
The plant is \_\_\_\_\_ tall.

**Week 6:**

The plant is \_\_\_\_\_ tall.

**Week 7:**

The plant is \_\_\_\_\_ tall.



**Week:** \_\_\_\_\_

The plant is \_\_\_\_\_ tall.

**Week:** \_\_\_\_\_

The plant is \_\_\_\_\_ tall.

**Week:** \_\_\_\_\_

The plant is \_\_\_\_\_ tall.

**Week:** \_\_\_\_\_

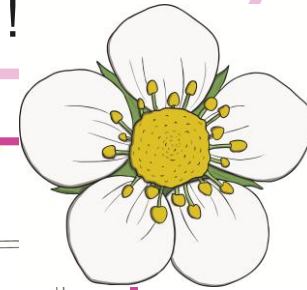
The plant is \_\_\_\_\_ tall.

**Week:** \_\_\_\_\_

The plant is \_\_\_\_\_ tall.

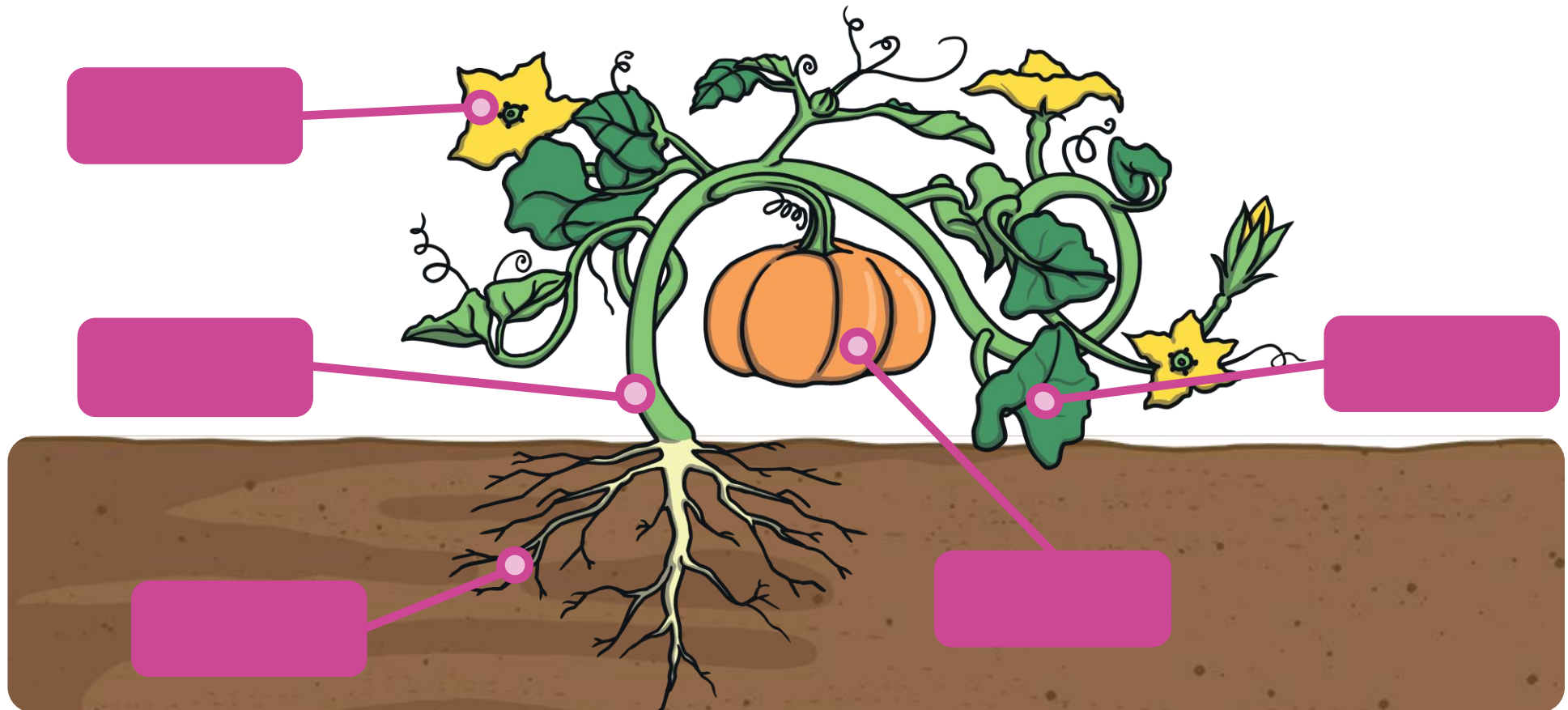
**Week:** \_\_\_\_\_

The plant is \_\_\_\_\_ tall.



# Remember It

Can you name each part of this plant with your partner?  
Do we know what any of the parts are important for?





# Growing, Growing, Grown

Let's learn more about **plants** from the **Growing, Growing, Grown eBook**.



Let's read up  
to the end of  
page 10  
together.





# Seeds

We have learnt that plants make new plants using their **seeds** or **bulbs**.

Look carefully at the **seeds**.  
What do you think might be inside them? Explain why.



flax seeds



pumpkin seeds



sunflower seeds



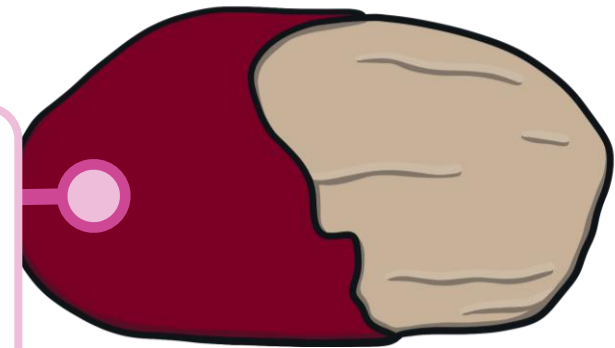
# What's Inside a Seed?

Inside the seed is everything the baby plant needs to start growing!

Each seed has a **seed coat** that protects the seed from damage as it grows.

## Germination

This is when a plant starts to grow from its seed, as a tiny **shoot** bursts out and begins to grow bigger. This happens when the **conditions** are right (the plant has everything it needs).



# What's Inside a Seed?

This is what coffee beans look like when they have started to **germinate**.

What can you see? What do you notice about the seed (the coffee bean)?



How do you think the coffee beans will grow?

What do you think will happen next?



# What's Inside a Seed?

The inside of a seed looks like this:

This part will grow into the stem and leaves.

**baby plant**

**food store**

This part will grow into the roots.



Which part do you think will grow into the leaves?  
Which part do you think will grow into the roots?

X

Good like a fully  
help it to grow!



# Dissecting a Seed

Today, we are  
we will open

How to **dissect** a seed

The seeds  
need to be  
soft, so they  
have been

Very gently, put the seed between your  
finger and thumb and gently rub the  
seed. The two halves should come apart.

Gently drag your thumbnail along the

Use your magnifying glass to look at the inside  
of the seed. Can you see the baby plant?



Can you tell which part will grow into the roots  
and which will grow into the stem and leaves?

X  
at, then the seed.  
them?





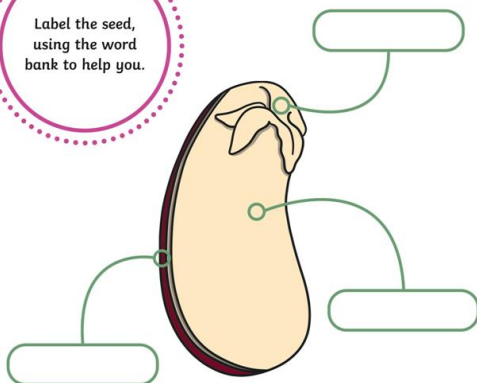
# Inside a Seed

Complete the **Inside a Seed Activity Sheet**

## Inside a Seed

To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.

Label the seed, using the word bank to help you.



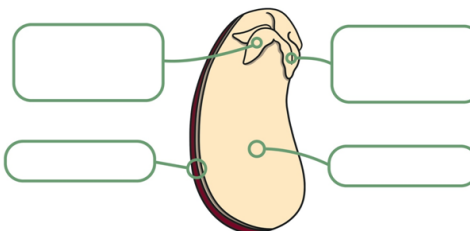
### Word Bank

seed coat      baby plant      food store

## Inside a Seed

To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.

Label the seed, using the word bank to help you.



Can you explain what each part of the seed does?

The seed coat \_\_\_\_\_

The food store \_\_\_\_\_

The baby plant \_\_\_\_\_

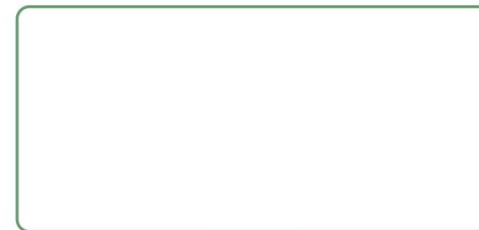
### Word Bank

seed coat      will grow into stem and leaves      will grow into roots      food store

## Inside a Seed

To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.

Draw a diagram of the inside of a seed and label it to show the different parts, using the word bank to help you.



### Word Bank

seed coat      will grow into stem and leaves      will grow into roots      food store

Can you explain what each part of the seed does?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# How Do Seeds Grow?



M  
th  
sun

To **germinate**, seeds need water and the right temperature. Some seeds need more warmth and water than others do.

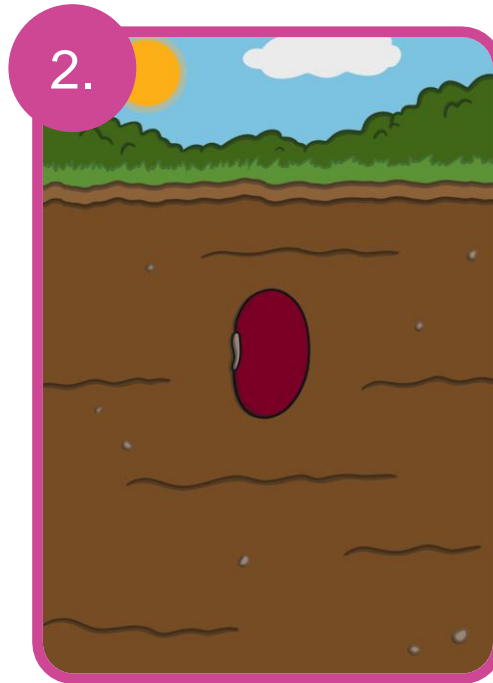
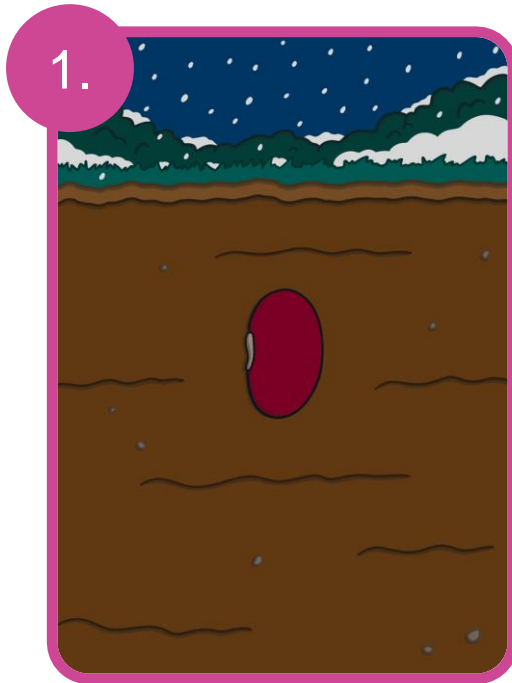
ve  
ut  
ger.





# How Do Seeds Grow?

Which of these seeds do you think will **germinate**?  
Explain why.



Think about the seeds we planted in the last lesson.

Which ones do you think will **germinate**? Why?  
Which ones do you think won't? Why?

# Aim



- To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.

# Success Criteria

- I can identify the parts of a seed that will grow into a plant.
- I can explain what a seed needs to begin to grow.
- I can explain what 'germination' means.







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# Plants: What's Inside a Seed?








<b>Aim</b> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Observing closely, using simple equipment.</p> <p>To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.</p>		<b>Lesson Duration</b> All timings are approximate. <div style="text-align: right; border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">             60 mins         </div>
<b>Success Criteria</b> <p>I can identify the parts of a seed that will grow into a plant.</p> <p>I can explain what a seed needs to begin to grow.</p> <p>I can explain what 'germination' means.</p>	<b>Key Vocabulary</b> <b>Seed</b> , food, food store, seed coat, <b>germination</b> , conditions, baby plant, <b>roots</b> , <b>shoot</b> , <b>leaves</b> , water.	
<b>Standard School Equipment</b> Magnifying glasses  <b>Resources That May Need Purchasing</b> Various types of seeds to observe, such as pumpkin seeds, cress seeds and beans - enough for the class to handle.  Large beans, such as kidney beans - at least one per child. Beans should be pre-soaked for 24 hours (you can use frozen beans which will not need to be soaked, but will need thawing).  A piece of paper or paper towel, per child, to place their seed on as they dissect it.	<b>Preparation</b> <b>Lesson Pack</b>  Differentiated <b>Inside a Seed Activity Sheet</b> - per child  <b>Disclaimer</b> Some ingredients and/or materials used might cause allergic reactions or health problems. You should ensure that you are fully aware of the allergies and health conditions of those taking part. If you have any concerns about your own or somebody else's health or wellbeing, always speak to a qualified health professional. Activities listed within the resource should always be supervised by an appropriate adult. Please make sure you are aware that children may put items into their mouths, and that they should wash their hands afterwards. By using this resource, you acknowledge that it is the responsibility of supervising adults to ensure the safety of children in their care and that we will accept no liability as a result of the activity.	

**Prior Learning:** In the previous lesson, children considered what they thought plants needed to stay healthy. In year 1, they learnt about the parts of a plant.

## Learning Sequence

	<b>Remember It:</b> As a class, observe the class plant that was planted in the previous lesson. Use the <b>Class Plant Diary</b> to record any changes in growth. Use the <b>Lesson Presentation</b> to recap what the children know about the parts of a plant.	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">5 mins</div>
	<b>Growing, Growing, Grown:</b> Read pages 7-10 of the <b>Growing, Growing, Grown eBook</b> together to learn about more things that all living things have in common, including nutrition, waste removal and reproduction (in the previous lesson, we also read about growth and movement).	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">10 mins</div>
	<b>Seeds:</b> Show the children some different types of seeds, allowing them a little time to handle them (there are also photographs on the <b>Lesson Presentation</b> that can be discussed if you do not have different types of seeds available).  Discuss how different plants will grow from different seeds. Ask the children what they think might be inside the seeds.  <p>Can the children explain their ideas about what they think is inside a seed and why?</p>	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">5 mins</div>
	<b>What's Inside a Seed?</b> Use the <b>Lesson Presentation</b> to introduce the children to the inside of a seed, including the location of the baby plant (embryo), and explain how seeds germinate.  Look at the inside of the seeds on the <b>Lesson Presentation</b> carefully. Children can discuss with their partner which parts of the inside of the seed they think will grow into which parts of a plant.  <p>Can the children identify the part of a seed that will grow into a new plant?</p>	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">5 mins</div>
	<b>Dissecting a Seed:</b> Explain to the children that they will be dissecting a seed to look inside it. Demonstrate dissecting a seed by following the instructions on the <b>Lesson Presentation</b> as the children follow along. Model how to locate the baby plant and the food store, using a magnifying glass to look closely.  <p>Can the children identify the parts of a seed that will grow into a plant?</p>	<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 40px; margin: 0 auto;">15 mins</div>



	<p><b>Inside a Seed:</b> After dissecting and observing their bean, children complete the <b>Inside a Seed Activity Sheet</b>.</p> <p>Can the children identify the embryo (baby) plant and its food store? Can they explain how each part is used during germination?</p> <div style="display: flex; justify-content: space-between;"> <div> <p> With support, children label the diagram of the seed on the <b>Inside a Seed Activity Sheet</b>. They explain to an adult the functions of some parts.</p> </div> <div> <p> The children complete the <b>Inside a Seed Activity Sheet</b>. They label the parts of the seed and explain the functions of the parts.</p> </div> <div> <p> The children complete the <b>Inside a Seed Activity Sheet</b>. They draw a diagram of their seed, label the parts of the seed and explain the functions of the parts.</p> </div> </div>	
	<p><b>How Do Seeds Grow?</b> Use the <b>Lesson Presentation</b> to discuss with the children how seeds begin to germinate and the things they need to do so.</p> <p>Ask the children to think of the seeds they planted in the last lesson. Ask: Do you think they will all grow? Which ones do you think won't? Why?</p> <p>Can the children explain the conditions needed for seeds to germinate and explain which of their seeds they think will not grow?</p>	

**Explore it**

**Investigate it:** Children investigate what the inside of other seeds look like, comparing them to the seeds dissected during the lesson. How are they similar? How are they different?

**Observe it:** Children can grow fast growing seeds such as cress and beans on cotton wool or paper towels to closely observe how the shoot and roots grow from the seed. Children could create a record of this through drawings, diagrams, notes and/or photographs.

**Reason it**

Children discuss **Reasoning Card 2 What's Inside a Seed?** Children name the parts of a seed and compare two different types of seeds.

**Assessment**

<b>Scientific Knowledge</b>	
<b>Working Towards the Expected Level</b> With support, children can dissect and observe a seed, explaining which parts will grow into a plant and which part is its food.	Children:
<b>Working At the Expected Level</b> Children can dissect and observe a seed, explaining which parts will grow into a plant and which part is its food.	Children:
<b>Working At Greater Depth</b> Children can dissect and observe a seed, explaining which parts will grow into a plant and which part is its food. They can begin to explain how each part of the seed is used.	Children:
<b>Working Scientifically</b>	
<b>Working Towards the Expected Level</b> With support, children observe the natural world around them.	Children:
<b>Working At the Expected Level</b> Children observe the natural world around them.	Children:
<b>Working At Greater Depth</b> Children observe the natural world around them and begin to explain their observations using simple scientific language.	Children:

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				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can identify the parts of a seed that will grow into a plant.				Notes/Evidence					
I can explain what a seed needs to begin to grow.									
I can explain what 'germination' means.									
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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