

Stage 2: Growing our ingredients

Learning Objectives:

- To find out and describe the conditions that plants need to grow and stay healthy
- To grow ingredients from seeds

Stage Overview:

In this stage, the children learn the conditions plants need to grow. This is extended to learning where pizza ingredients come from, growing them and observing which plants grow the fastest during 'The great ingredient race' activity.

Giving the children the responsibility for caring for their own crops provides opportunities for them to experience the challenges of farmers and business owners in a very simple way. For example, if the crops do not grow, they will not have enough ingredients to make their products which will leave them with nothing to sell.

Materials needed:

- Tomato, onion, rocket, basil and wheat seeds (contact us at education@nfu.org.uk if you would like some wheat seeds from our members' farms)
- Compost
- Plant pots

Presentation notes:

Slide 2: What do plants need?	<ul style="list-style-type: none"> - Explain that just like humans, plants need some things in order for them to grow and be healthy. Ask the children if they can think of any things that plants need. Create a list on the working wall. - Explain that we are going to learn all about this so that we can grow all our own ingredients for our pizzeria businesses.
Slide 3: Carrot farm	<ul style="list-style-type: none"> - Share the Carrot Farm video to demonstrate the conditions needed for carrots to grow in the UK: https://www.youtube.com/watch?v=mRdavnBf2Gs&feature=emb_title - Ask the children to name any of the conditions they remember from the video and add them to the list.
Slide 4: Light	<ul style="list-style-type: none"> - Talk through the power point to explain the conditions plants need in more detail: - Plants need light in order to grow and be healthy. - Plants are very clever and they can turn sunlight into their own food in their leaves. - We also need sunlight to give us Vitamin D and keep us healthy.
Slide 5: Water	<ul style="list-style-type: none"> - Just like us, plants need water. Without the right amount of water, plants

	<p>cannot grow and be healthy.</p> <ul style="list-style-type: none"> - At the very start of a plant's life, it needs water to make it start to grow into a little seedling. - Once the seedling has grown some roots, the plant needs water to take up the nutrients (healthy things that help the plant grow) out of the soil. - Plants are very clever and they can make their own food in their leaves using sunlight and water.
Slide 6: Not enough water	<ul style="list-style-type: none"> - Water is very important to farmers. If we don't have enough rain, their crops will not grow properly to make our food.
Slide 7: Too much water	<ul style="list-style-type: none"> - Ask the children what they think will happen if plants have too much water? - Too much water is also a big problem for farmers. - Flooding or heavy rainfall can affect the health of a farmers' soil as it washes away some of the soil particles and nutrients that plants need to grow and be healthy.
Slide 8: Suitable temperature	<ul style="list-style-type: none"> - Ask the children to think about how they feel if they get too cold or too hot and what they do about it. - Just like us, plants need a suitable temperature in order to be healthy. They will not start to grow from seeds if their environment is not the correct temperature.
Slide 9: British fruit and vegetables	<ul style="list-style-type: none"> - Explain that different plants need different temperatures. This is why we can grow certain fruit and vegetables in Britain but not all of them. Tropical fruit, for example, needs to be in a much warmer environment in order to grow and be healthy. - Explain that eating fruit and vegetables that are grown in Britain is one way that we can care for the environment because it reduces how far the food has to travel to reach our plates. This reduces the need for transport, reducing air pollution.
Slide 10: How do we make pizza?	<ul style="list-style-type: none"> - Explain that we are going to use our new learning to grow our own ingredients for our pizzeria business. - Ask the children if they know any of the ingredients we need to grow to make pizza.
Slide 11: The base	<ul style="list-style-type: none"> - Explain that the base of a pizza is made from a type of bread. Ask the children if they know any of the ingredients of bread. - Flour is the main ingredient of bread. We can make flour from wheat. - Wheat is a variety of grass. Farmers sow wheat seeds to grow wheat plants. When the wheat is ready, the grains of wheat are taken off the stalk and ground up to make flour. - The part of the wheat plant that we don't eat is called the stalk and this can be turned into straw and used as animal bedding. - Explain that the children will be growing their own wheat plant.
Slide 12: The sauce	<ul style="list-style-type: none"> - Ask the children if they know any of the ingredients in pizza sauce. - Explain that pizza sauce can be made using tomatoes and basil leaves and we can grow these from seeds.
Slide 13: Toppings	<ul style="list-style-type: none"> - Ask the children what their favorite pizza toppings are and lead a conversation about where each one comes from. - Explain that they will be growing rocket and spring onions as toppings but they will be able to use other toppings that we cannot grow too.

Slide 14: Cheese	<ul style="list-style-type: none"> - The final essential ingredient that they will use for their pizzas is cheese. - Cheese is a dairy product which means it is made using milk. - Ask the children if they can remember where milk comes from and explain that it comes from dairy cows.
Slide 15: Applying learning	<ul style="list-style-type: none"> - Model how to plant each of the ingredient seeds and explain that within each one there is a new plant waiting to sprout. - Model how to measure water accurately and agree a standard volume of water that will be given to each seed. - Discuss the best place in the classroom to keep the plants to help them grow.
✓ Practical activity: Planting seeds	<ul style="list-style-type: none"> - Ask children to plant their seeds in small, labelled pots. - Lead a discussion about choice of pot material and which would be better for the environment. - Using iPads, you could ask the children to take photos of the steps taken when planting their seeds. They could then use the Shadow Puppet Edu iPad application to create a short video with these photographs in sequence and narrate an explanation of the instructions on how to grow your own pizza ingredients.
Slide 16: Nurturing our ingredients	<ul style="list-style-type: none"> - Lead a discussion about how we will use our learning about what plants need in order to care for and monitor the health and growth of our plants and the importance of farmers, as business owners, doing this.
Slide 17: The great ingredient race	<ul style="list-style-type: none"> - Explain that the children are going to be keeping an observation diary to record which of their ingredients is growing the most quickly. - Model how to measure their plants accurately as ask the children to add the height of their plants to their observation diaries regularly. - Ask them to make a prediction about which ingredient they think will 'win the race' and grow the fastest. - When the plants reach an agreed height, ask the children to describe what they have learnt and which ingredient grows the fastest.

Links to the National Curriculum:

Subject	Topic	Objective
Science	Plants	<ul style="list-style-type: none"> - Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
	Working scientifically	<ul style="list-style-type: none"> - Asking simple questions and recognising that they can be answered in different ways. - Observing closely, using simple equipment.
Design and Technology	Cooking and nutrition	<ul style="list-style-type: none"> - Understand where food comes from.
Maths	Measurement	<ul style="list-style-type: none"> - Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.