Stage 3 - Growing Our Ingredients From Seeds

Learning Objectives

- Notice that plants have distinct characteristics.

- Identify similarities and differences among the various types of plants grown.

- Understand the basic needs of plants and energy.

- Consider different ways plants are grown for food.

- Discuss examples of environmental conditions that may threaten plant and animal survival.

Let's Recap the Last Session

We learned:

- As a group, make up two truths and a lie about where plants come from or where seeds come from.

- Present your two truths and a lie to the other groups to see if they'll make a mistake.

Growing Plants From Seeds

We are going to grow the plants we will need for our granola bars.

Inside each seed is everything they need to make a new plant… but they need the right conditions to grow.

We will keep a journal during our investigation to see which of our plant ingredients will grow fastest and win the Great Ingredient Race!

What Do Plants Need?

Just like humans, plants need certain things to grow and be healthy.

Can you think of any?

We will learn all about this so we can grow all our own plant ingredients for our granola bar business.

Light

- **Plants need light to grow and be healthy.**

- **Plants are amazing! They can turn sunlight and water into their own food in their leaves during a process called photosynthesis.**

- **We also need sunlight to help our bodies make Vitamin D to keep us healthy.**

Photosynthesis

- During photosynthesis, plants use sunlight to turn water and carbon dioxide into nutrients to keep them healthy.

- Photosynthesis also releases oxygen; the gas humans and animals need to breathe.
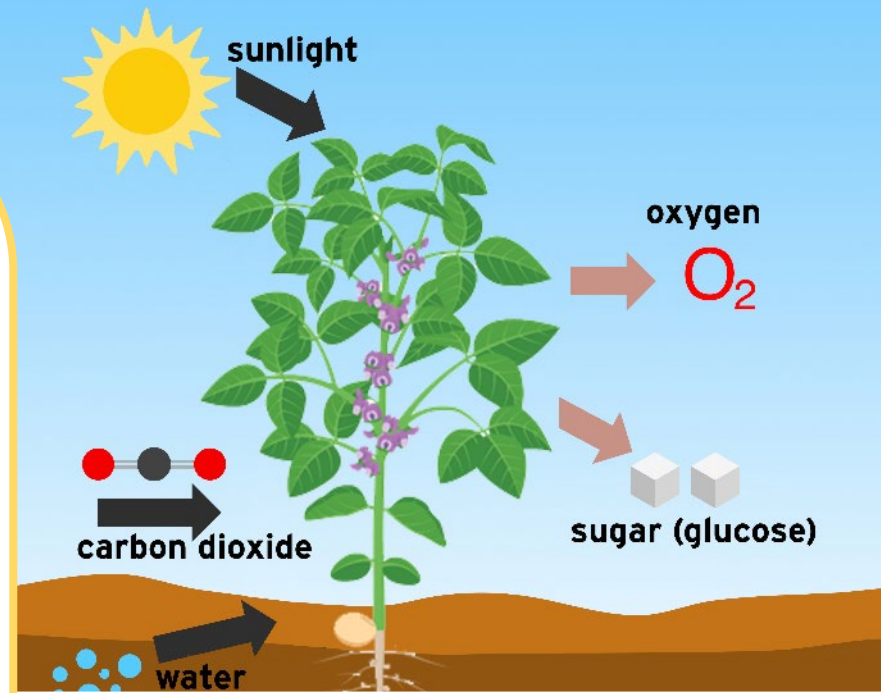
Water

- Just like us, plants need water. Without the right amount of water, plants cannot grow and be healthy.

- At the start of a plant's life, it needs water to make it grow into a little seedling.

- Once the seedling has grown roots, it needs water to take up nutrients out of the soil. Nutrients are healthy things that help the plant grow.

Not Enough Water

- Water is very important to farmers.

- If there is not enough rain, their crops will not grow properly.

- Some farmers irrigate (water) their crops during the growing season. Others rely on rainfall to get enough water for their plants to grow. Here in Ontario, most farmers rely on rain.

Too Much Water

- Too much water is also a big problem for farmers.

- Flooding or heavy rainfall can affect the health of soil because it washes away some of the soil particles and nutrients that plants need to grow and be healthy.

Temperature

- **How do you feel if you get too cold or too hot? What do you do about it?**

- **Just like us, plants need a suitable temperature to be healthy. They will not start to grow from seeds if their environment is not the correct temperature.**

Grown in Ontario

- Different plants need different temperatures to grow, which is why we can grow certain foods in Ontario but not all plants.

- Eating food grown in Ontario is one way we can care for the environment. When food does not have to travel very far to reach our plates, it takes less fuel, which reduces air pollution.

Nutrients

- **Plants take their nutrients from their soil, so it is very important that farmers keep their soil healthy. We will learn all about this later in the project.**
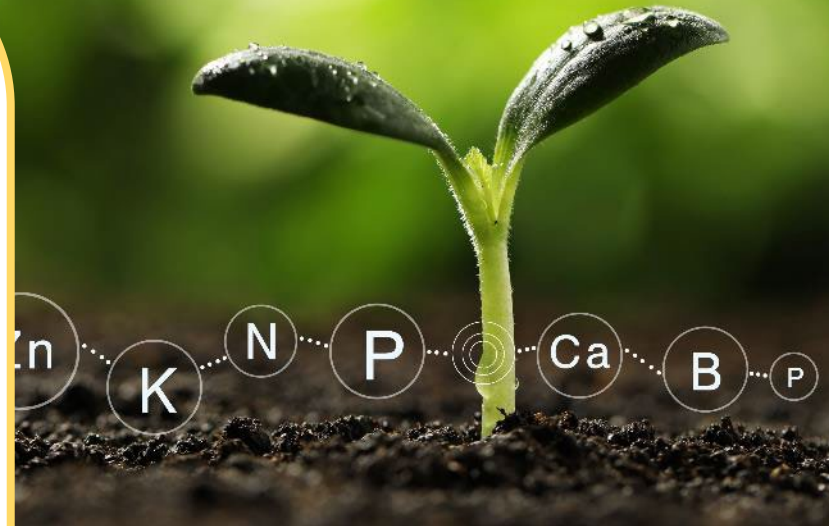
A Fair Test

A fair test is a controlled investigation that compare two things. For a test to be fair or well-controlled, we must make sure that only one thing (called a variable) is changed and everything else is kept the same.

Variables

A variable is anything that can affect the results we are observing or measuring.

In our investigation, we will use two different seeds. This is the variable we are changing. We will treat both of our seeds exactly the same and observe what happens.

What variables do we need to keep the same as we look after our young plants?

Make a Prediction

Which plant do you think will grow fastest? Why?

Which plant do you think will grow tallest? Why?

Write down your prediction.

Investigation Planning

My research question:

Things I will keep the same:

One thing I will change:

What I will measure:

My prediction:

Planting Your Seeds

Once you have planted your seeds, think about how you will keep your experiment fair.

How much water will you give the seeds? How are you going to measure this? How often will you water the seeds?

Where is the best place in your classroom to keep the plants?

Remember to label your plants so you know which pot is which.

Observational Journals

You are going to keep a seed journal. Each time you water your plants, observe them and record any differences you notice.

Include a diagram for each of your journal entries.

Bonus! Take a picture of your plants each day to create a time lapse video of your plant's growth.

Conclusions

Once your plants have grown, consider these questions:

- Explain what you found and why you think it happened.

- Was your prediction correct?

- Which ingredient grew fastest?

- Which ingredient grew tallest?

- What did you notice about the directions the plants grew?

- Was your investigation a fair test?

- How could you improve it next time?