

LESSON: Greenhouse Growing

LEARNING OBJECTIVES:

- Recall and explain the 4 main parts to growing a plant
- Understand and explain what a greenhouse is and why they are important to the food system
- Define and give examples of agriculture

LEVEL:



MATERIALS:

- Activity Sheet: Level 1 - Build-A-Greenhouse
- Activity Sheet: Level 1 - What Does A Plant Need?
- PowerPoint: Level 1 - Greenhouse Growing
- Quiz: Level 1 - Greenhouse Growing

LESSON:

Starter: The purpose is to introduce the idea of growing methods in agriculture, specifically in greenhouse farming, the basic needs of a plant, and to bring students together to have them start talking and thinking about these topics.

Section 1: Where Does Food Come From? An Introduction to Agriculture

*Ask Class: Where does food come from? *listen to response, build an answer together, recap and compare with the following**

Almost all food comes from farms! Farms can grow or produce foods like vegetables, fruits, meat, eggs, and even dairy (*Dairy* - examples: milk, cheese, yogurt). A word we use to describe the process of growing food or farming is called agriculture.

Ask Class: Let's say it together! A-G-R-I-C-U-L-T-U-R-E

Agriculture is very important to provide everyone with yummy and healthy food.

*Ask Class: Have you ever seen agriculture or been to a farm before? What types of farms do you know? *Create a fun list of farms then transition to answer below**

There are all kinds of farms: cows for milk, chickens for eggs, even flowers for flower shops! Today we are going to focus on how we grow our fruits and vegetables! Specifically, how Nature Fresh Farms (NFF) grows their fruits and vegetables in a **greenhouse**.

Section 2: What is a Greenhouse?

*Ask Class: Does anyone know what a greenhouse is? *listen to response, build an answer together, recap and compare with the following**

A greenhouse is a large building made for growing plants INSIDE. Usually, greenhouses are controlled by a computer which can tell you everything about the environment inside - such as the temperature, air, and water!

The greenhouse also has very talented workers watching the plants to make sure that they are growing perfectly.

Each greenhouse is slightly different, but let's take a look at how Nature Fresh Farms (NFF) grows their products - Tomatoes, Peppers, and Cucumbers - in the greenhouses!

Section 3: The Key to Growing Produce

While Tomatoes, Peppers, and Cucumbers are different fruits and vegetables, they are all grown in the greenhouse the same way! There are **4 main parts** to growing these fruits and vegetables. They are:

1. **A Base**
2. **Food**
3. **Support**
4. **Environment**

Base:

NFF uses a planter box to grow its vegetables and fruit. Inside the planter box, is something different than soil.

*Ask Class: Can anyone guess what Nature Fresh Farms fruits and vegetables are grown in? *listen to response, build an answer together, recap and compare with the following**

NFF uses ground up coconut husk to grow their products in, which is the outside of a coconut ground up into little fibers - tiny bits.

Coconut fiber is great to grow plants in because it helps to hold on to the important minerals (*minerals* - good nutrients living things need to grow), but it also allows all of the extra water that the plant does not need to drain out of the box. This way, the roots of the plant are healthy as they are not sitting in water and rotting. A healthy base is important to support the roots of a plant*.

****Class Activity:** You can demonstrate how the planter box and the coconut husk drain water by holding up a cup with holes in the bottom. Place a small sponge in the bottom of the cup to represent the plant's roots. Slowly pour water in the cup until water begins to drain out the bottom. The water that the sponge has taken in can represent the roots taking in water. Any excess water that is drained out the bottom of the cup can represent the planter box and coconut husk and how they work together to drain the excess water that the roots do not need, just like in the greenhouse!*

Food:

***Did you know?** Plants need food just like you!*

Plants need lots of **water, minerals, and sunshine to be healthy.**

In the greenhouse, drippers (*drippers- plastic tubes which give water to the plant's roots*) are used to feed the plants water and healthy minerals. The water is controlled by computers and is carried from all over the greenhouse where it is dripped into the planter box.

***Fun Fact:** NFF uses a **closed loop water system!** This means that all the extra water that drains out of the planter box gets recycled! This way, there is no water waste.*

Another type of food which plants need is sunshine! The greenhouse uses special glass to allow the sun to shine through into the greenhouse and onto the plant's leaves for energy.

***Did you Know?** Humans need sunshine too to give us vitamins and to keep us healthy!*

Support:

Plants need support in order to grow TALL in the greenhouse. Fruit and vegetables are often heavy and can push the plants stems down. To help them grow upward, NFF uses strings and clips for support.

This process is called, *vertical growing*, and it helps the plants to grow UP!

***Fun Fact:** The plants in the greenhouse can grow REALLY big! Tomato plants can grow up to 50 feet! That's like 15 of you!*

Environment:

Plants need a good environment to be happy and grow in. Plants like warmer areas with lots of natural light or sunshine.

The greenhouse gives the PERFECT environment.

- It is warm
- There is lots of sunshine
- And there are windows to let the air in!

By being inside, plants are also protected from many things like: bad bugs, wind, and storms.

Section 4: Importance of the Greenhouse

The greenhouse grows fresh fruits and vegetables ALL year long! This makes it easier for families to get fresh food at the grocery store anytime.

**Educators Note: For further facilitation, use the assigned quiz to recap the key concepts and to test knowledge learned from this lesson.*

REFLECTION NOTES: