

## 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 3 - Greenhouse Growing Crossword
- Activity Sheet: Level 3 - Greenhouse Growing Matching Sheet
- PowerPoint: Level 3 - Greenhouse Growing
- Quiz: Level 3 - Greenhouse Growing
- YouTube Video: I Want to Know Where this Comes From!

### 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 a farm. Farms can grow or produce different foods, such as: 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*. Agriculture is very important to provide everyone with fresh, nutritious, 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 and beef, 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 fruit 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 all controlled by a computer which can tell you everything about the environment inside. Everything in the greenhouse is monitored by very talented experts to make sure that the plants are growing perfectly.

Some examples of things monitored are: temperature, air quality, and water. Each greenhouse is slightly different, but let's take a look at how Nature Fresh Farms grows their products - Tomatoes, Peppers, and Cucumbers - in their 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 products.

They are:

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

### **Base:**

NFF uses a planter box to grow their products. Inside the planter box, is something different than soil.

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

NFF actually uses ground up coconut husk (which is the outside of a coconut ground up into little fibers) to grow their products in. Coconut fiber is a great growing medium (*growing medium* - something to grow plants in) because it helps to hold on to important minerals (*minerals* - good nutrients living things need to grow), but it also drains some of the extra water that the plant does not need.

That way the roots of the plant are not sitting in the extra water and rotting. A healthy base is important to support the roots of a plant.

**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 deliver water directly to the plant's roots*) are used to feed the plants water and healthy minerals. The water is filtered through an *irrigation system (irrigation system - a system that allows water to flow and be distributed to where it is needed)* and ends up at the drippers, which are placed in the planter box. Plants are watered throughout the day and the amount of water varies depending on the heat and humidity in the greenhouse.

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 food plants need is sunshine! The greenhouse uses special glass to allow some of the sun's rays into the greenhouse and onto the plant's leaves for energy. This helps with the process called *photosynthesis (which helps convert sunlight into energy for the plant to use)*.

**Support:**

Plants need support in order to grow tall. Fruit and vegetables are often heavy which weighs the stems down. To help the plants grow in the right direction, strings and clips are attached to the plants and are used for support. These strings are wrapped around the plants and strung up to the top of the greenhouse which help the plants to grow tall.

This process is called *vertical growing*.

Ask Class: *Why might Vertical Growing be important?*

Vertical growing allows the plants to grow upwards instead of outwards, producing (*producing - growing/giving us*) more fruits and vegetables.

Fun Fact: *The plants in the greenhouse can grow REALLY big! Tomato plants can grow up to 50 feet!*

**Environment:**

Plants need the perfect environment to be happy and grow. Plants like warmer areas with lots of natural light. The greenhouse provides the plants with everything they need from controlled temperature using a heating system, to protection from things like certain pests, wind, and harsh storms. All these examples demonstrate the huge benefits of greenhouse growing!

#### Section 4: Importance of the Greenhouse

The greenhouse allows us to grow lots of fresh produce throughout the year, no matter what the weather is outside. It also provides the area with lots of different jobs which is great for families and communities. Overall, greenhouses offer many benefits, one major benefit being growing more fresh produce in a much smaller area!

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

**REFLECTION NOTES:**