

**Topic:** plant needs

**Overview** Students will explore how a plant makes food and the vital items it needs in order to accomplish this. This lesson is a part of a unit of plants. It is based on the prior knowledge that the children know the parts of a plant.

**Grades** 1-2

### **Time Allotment**

Two or three 30-minute periods

### **Learning Objectives**

On completion of this lesson students will be able to:

- List the three things a plant needs to make food.
- Explain how plants make their own food.
- Create the environment a plant needs to grow

This lesson addresses Va. SOLs Science 1.4, 1.5 2.4, 2.5

### **Media Components**

- TV
- VCR with remote and counter
- Intel Play Microscope or other scope with slides of plant parts
- Computer with Intel Microscope Software installed
- Video 'The Magic School Bus Gets Planted (Helping a Tiny Sprout Grow Tall)' DVD/VHS. [http://www.scholastic.com/magicschoolbus/home\\_2.htm](http://www.scholastic.com/magicschoolbus/home_2.htm)

### **Materials and Student Handouts (one per student)**

- Handout A (sheet to write down answers from video)-attached, 1/ student
- Handout B Quiz-attached, 1/ student
- Fresh leaves, stems and roots
- Paper
- Pencils
- Pots
- Soil
- Seeds

### **Teacher Preparations**

- Prep microscope
- Have specimens prepped for student viewing.
- Prepare and copy handouts to go with video and questions
- Preview and cue video
- Prep pots, seeds, soil and water for student use.
- Prepare and copy quiz

### **Introductory Activity**

**Focus:** Teacher says, “Today we are going to learn how and where a plant gets its food. Does anyone know how a plant eats?” Listen to responses respond appropriately. “Let’s look at these plants and their parts under the microscope and see if we can determine how they eat.”

**Play:** Have students take turns looking at plant parts under the microscope, explaining how to focus the microscope as they go.

**Pause/Stop:** After everyone has had a turn, ask the students if they saw anything that might answer our question. Listen to responses and respond appropriately.

**Follow-up:** Review lesson objective and tell the class that we are about to find out how a plant eats.

### **Learning Activities**

1. **Focus:** Hand out packets and ask class to turn to the second page. Explain that this is the page they will record their answers. Teacher says, “We are going to watch a little bit of a video, while you are watching it listen for the one thing every living thing needs to grow.”

**Play:** start video at 5:47 and end at 6:11, (stop when girl says ‘You need to eat what plants eat.’ and when you see a duck eat out of the bag of chips) Keep lights on.

**Pause/Stop:** Teacher says, “Ok, we saw that Phoebe became a plant. She and her friends learned that all living things need what to grow?” Wait for the correct response. Have students record the correct answer on their sheet.

**Follow-up:** “Now we know that all living things need food to grow let’s keep going to see how a plant eats.”

2. **Focus:** Teacher says, “In this next segment we will learn a little more about what the plant needs for food. As we watch, think about what comes in through the openings in the leaf.”

**Play/Resume:** 12:00 – 13:30 (Stop when you hear ‘but what does that have to do with getting food?’ and two girls are looking at each other.)



**Pause/Stop:** Teacher says, “What did we see come in through the openings?” Wait for correct response respond appropriately. Have students record the correct answer on their sheet

**Follow-up:** Teacher says, “Ok, now we know that a plant needs food to grow and it brings in air, but we still don’t know how a plant eats. Let’s keep going to find out.”

3. **Focus:** Teacher says, “We will now watch another segment of video. We will see that the sun has an effect on the plant. What effect does it have?”

**Play/Resume:** 14:00 – 15:05 (Stop when girl says ‘And the sun seems to give them energy.’ and you see a girl floating next to a green chloroplast.)

**Pause/Stop:** Teacher says, “What did we learn? What effect does the sun have on a plant?” Wait for correct responses and respond appropriately. Have students record the correct answer on their sheets.

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**Follow-up:** Teacher says, “Now we know that a plant needs food to grow, brings in air and that sun gives it energy. We still don’t know how a plant eats.”

4. **Focus:** Teacher says, “In this next segment we will learn more about chloroplast. We will find out the three things the chloroplast uses to help the plant grow. Listen for that and what it makes.”

**Play/Resume:** 15:05 – 16:15 (Stop when the class says ‘Yeah we figured it out!’ and they are waving to their teacher who is on top of the bus.)

**Pause/Stop:** Teacher says, “What did we find out? What are the three things the chloroplasts use? What did it make?” Listen to responses then ask, “Is this what the plant eats?” Listen to responses and respond appropriately. Have students record correct answers on their sheet.

**Follow-up:** Review what the students have learned. Teacher says, “Today we have learned that every living thing needs food to grow, leaves bring in air and the sun gives the plant energy. We also learned that chloroplasts use water, air and the sun to make a sugary substance that the plant eats for food. So the plant makes its own food.”

### **Culminating Activities**

**Focus:** Divide students into two groups for the following two stations:

1. microscope viewing plant parts
2. planting seeds

**Activity:** The first group will watch a slide presentation using the pictures taken from the Intel-Play microscope highlighting the chloroplasts and enlarging the openings in which the air enters. The students can then examine the leaves, stems and roots under the microscope. Meanwhile the second group will have an opportunity to plant their own seeds. They will use potting soil and fill a small terracotta pot. They will then choose two seeds. (They can be the same or different.) They will place the seeds in the dirt; add a little water and place in a sunny spot.

**Follow-up:** Rotate groups.

### **Assessment**

- Quiz - attached

### **Community Connections**

- The students can visit a greenhouse and learn what the owners do to ensure a proper growing environment for their plants. The students can find out if all environments are the same for all kinds of plants.



### **Cross-Curricular Extensions**

#### **Writing**

- The students can keep a journal recording the changes they see in their plants.

#### **Math**

- Students can take measurements and plot the growth of their plants.

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**Art**

- The students can paint their terracotta plants before they plant their seeds.

**Adaptation:**

- If there is not a microscope available, the class can use magnifying glasses.
- If it is a large class and there aren't enough microscopes to share, you can hook the microscope to a television monitor.

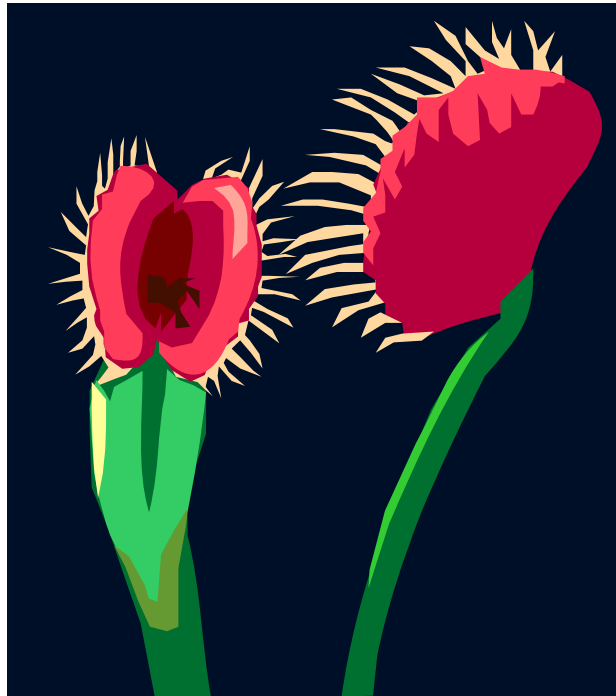
**About the Author**

Kathryn Staton is a math/science teacher at Clymore Elementary School in Augusta County, Virginia.

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# **Feed Me**

## **How Plants Get Their Food**



Answer these questions as we watch our video.

1. What is one thing every living thing needs to grow?

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2. What comes through the openings in the leaves?

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3. What effect does the sun have on the plant?

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4. What are the three things chloroplasts use to help the plant grow?

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5. What did the chloroplasts make?

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6. How does the plant eat?

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## Quiz

1. What is one thing all things need to grow?
  - a. candy
  - b. food
  - c. music
  - d. liver
2. What comes through the openings in the leaves?
  - a. people
  - b. water
  - c. bugs
  - d. air
3. What effect does the sun have on the plant?
  - a. makes it dance
  - b. sings to it
  - c. gives it energy
  - d. makes it sad
4. What are the three things chloroplasts use to help the plant grow?
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
5. What did the chloroplasts make?
  - a. beef
  - b. sugar
  - c. vegetables
  - d. bread