

### Follow-up Activities

- Have children identify the basic needs of plants. Bring several types of living plants into the classroom and have children examine them, matching each plant need with the parts of the plant that supply that need. Ask children to predict the ideal growing conditions for each plant and check their predictions.
- Do plants need soil to grow? Experiment by planting seeds in egg cartons filled with different types of soil substitutes such as shredded newspaper and gravel in addition to potting soil and sand. Have students water the seeds and place them in a sunny window; then have them record growth observations and compare their results.
- Have children make a Venn diagram that describes how plants and animals are alike and how they are different.
- Invite a horticulturist to talk to students regarding the care of indoor and outdoor plants. This would be especially valuable if the speaker could refer to plants that are kept in the classroom or in the school, and to ones that are found in the schoolyard.
- Have children design a school herb garden, butterfly garden, vegetable garden or terrarium. Individual students or groups of students could select which seeds to plant, and then take responsibility for the care and watering of those plants. Keep a class garden journal to record all observations (plant size and growth measurements, plant and soil characteristics, weather conditions, time of day, any problems with bugs). Make sure to record failures; that's how you'll learn what each particular plant needs.

### Suggested Internet Resources

Periodically, Internet Resources are updated on our Web site at [www.libraryvideo.com](http://www.libraryvideo.com)

- [www.urbanext.uiuc.edu/gpe/case1/c1facts3a.html](http://www.urbanext.uiuc.edu/gpe/case1/c1facts3a.html)

The Great Plant Escape is a Web site designed to introduce children to plant science and increase their understanding of what plants need to grow. These pages focus on growing plants indoors.

- [www.nybg.org/chil\\_edu/progmat.html](http://www.nybg.org/chil_edu/progmat.html)

The New York Botanical Garden has been a living museum of plants since the end of the 19th century. These pages list teacher guides and student activity booklets that are downloadable and easily adapted for classroom use. *(Continued)*

- [www.cas.psu.edu/docs/CASPROF/agclassroom/lesson2.html](http://www.cas.psu.edu/docs/CASPROF/agclassroom/lesson2.html)  
The Ag Awareness foundation Web page from Penn State University gives some great integrated plant lesson ideas and provides social studies, language arts and science lesson plans.

### Suggested Print Resources

- Brenner, Barbara. *The Plant That Kept on Growing*. Bantam Doubleday, New York, NY; 1996.
- Byles, Monica. *Experiment With Plants*. Lerner, Minneapolis, MN; 1994.
- Cole, Joanna. *The Magic School Bus Gets Planted*. Scholastic, New York, NY; 1997.
- Stewart, Diane. *Gift of the Sun*. Farrar Straus, New York, NY; 1996.

### TEACHER'S GUIDE

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### TITLES

- ALL ABOUT CARING FOR PLANTS
- ALL ABOUT PLANT POLLINATION: FRUIT, FLOWERS & SEEDS
- ALL ABOUT PLANT & ANIMAL INTERDEPENDENCY
- ALL ABOUT PLANT STRUCTURE & GROWTH
- ALL ABOUT PLANT ADAPTATION

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# Plant Life

for Children™



## All About Caring for Plants

Grades K-4

This guide is a supplement, designed for educators to use when presenting this program in an instructional setting.

**Before Viewing:** Research in learning suggests that it is important for the teacher to discover what the students know — or think they know — about a topic, at the start of a new unit, so that their accurate conceptions can be validated and reinforced, and their misconceptions identified and corrected. Therefore, after reviewing the pre-viewing discussion questions provided for your class, create a “Everything We Know About...” list. Preview key vocabulary words and have students raise additional questions they hope will be answered by this program. Most importantly, students should be told that as “science detectives” they must listen closely, so that after viewing the program, they will be able to tell whether or not the facts/beliefs they put on their list were scientifically accurate.

**After Viewing:** After a brief discussion about the program, challenge your “science detectives” to prove or disprove the accuracy of the facts they put on their “Everything We Know About...” list. Discuss what else they learned and use the follow-up questions and activities to inspire further discussion. Encourage students to research the topic further with the Internet and reading resources provided.

**SCHLESSINGER**  
**SCIENCE LIBRARY**

## Program Summary

Dusty Jones is the young founder of a club called M.A.P.L.E., the Marvelous Association of Plant Loving Enthusiasts. He is impressed by the fact that only plants can use the sun's energy to make food, but he knows that in order to make food, grow and reproduce, plants need certain things. As Dusty prepares to leave with his family on a vacation, he begins to worry about his plants. He knows that he can't take them along and wonders if they will be alive when he returns. Along with other M.A.P.L.E. members, he begins investigating exactly what plants need to survive. They discover the basic requirements of all plants — sunlight, air, water, appropriate temperature, room to grow and proper nutrients. They also learn that providing the correct amount of each element is necessary to enhance a plant's ability to grow strong and healthy.

For example, while all green plants need light to make food, different varieties of plants need different amounts of light. Plants also need water but not all plants need the same quantity. Some plants grow best while when their roots are moist while others need periods of dryness to grow strong. Plants also need nutrients that can be found in soil, and they need something for their roots to grow in and to support the shoots and stems. Dusty finds out that soil works great, but you can grow some plants without soil if you give them nutrients and something to hold on to. As they discover how changes in the environment can influence a plant's growth by performing a hands-on experiment, the kids from M.A.P.L.E. make a list of basic plant needs for Dusty to present to his plant sitter.

## Vocabulary

The following words are included for teacher reference or for use with students. They are listed in the order in which they appear in the show.

**basic needs** — The survival requirements that organisms have. Plants need sunlight, water, air, nutrients from the soil and a habitat that provides room to grow and protection from changes in temperature.

**seed** — The part of a plant that contains a baby plant called an embryo, stored food and a tough seed coat. Seeds grow into new plants.

**sprout** — A seed that has just begun to grow.

**flower** — The showy part of a plant that contains the male and female reproductive parts and makes seeds.

**photosynthesis** — The process by which a plant produces its food using energy from sunlight, carbon dioxide from the air and water from the soil.

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**adaptation** — Changes in a plant's structure occurring over long periods of time that make the plant more fit for living in its environment.

**fungus** — Organisms such as molds, mildew and mushrooms.

**plant conservatory** — A living museum where plants are grown indoors for people to enjoy.

**horticulturist** — A person who studies the needs of different plants and takes care of them.

**humidity** — The amount of moisture in the air.

**hypothesis** — An educated guess; a proposed explanation for a scientific question or problem.

**nutrients** — Substances, including minerals, that plants need in order to stay healthy. Most plants get nutrients from the soil.

**soil** — The outer covering of the earth where plants grow. Good soil is made up of a mixture of minerals in the form of sand, clay, air, water and organic material.

**clay** — Very small soil particles.

**sand** — The largest soil particles.

**organic material** — Decayed plant and animal matter that makes up good soil.

## Pre-viewing Discussion

Before students generate their list of "Everything We Know About..." this topic, stimulate and focus their thinking by raising these questions so that their list will better reflect the key ideas in this show:

- How are plants and animals different?
- What do plants need to live and grow?

After the class has completed their "Everything We Know About..." list, and before watching the show, ask them what other questions they have that they hope will be answered during this program. Have students listen closely to learn if everything on their class list is accurate and to hear if any of their own questions are answered.

## Focus Questions

You may wish to ask your class the following questions to assess their comprehension of key points presented in the program:

1. What are some of the things people get from plants?
2. Do plants require care from people?
3. How do plants get food?
4. Why do plants need light?

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5. What is photosynthesis?
6. Why is photosynthesis important to animals like humans?
7. Do all plants need the same amount of light? Explain.
8. Why do plants need water?
9. How can some plants go for weeks or months without water?
10. Can you give plants too much water? Explain.
11. Why is temperature important to plants?
12. Why is it important to know about the natural habitat of your plants?
13. What do horticulturists do?
14. How do plants get nutrients from the soil?
15. What makes a soil 'good'?
16. Do all plants need soil to grow? Explain.
17. What happens to plants that don't receive enough light?

## Follow-up Discussion

The most important part of this segment is to examine both the facts and beliefs generated by the class in their "Everything We Know About..." list. Research indicates that students will retain their previous misconceptions — in preference to the new information — until they actively recognize and correct their own errors. Because of this, it is important to lead students to the correct ideas while identifying and correcting any misconceptions from the class list. After reviewing the list, encourage students to share the answers they got to the questions raised before viewing the program.

Raising a thought-provoking question is a good way to assess the overall depth of understanding. A couple of suggestions are listed below:

- Ask children to describe some of the different places where plants grow and discuss how they "fit in" to their homes. Have them explain what might happen if a desert plant was transplanted to the North Pole.
- Have students discuss the basic needs of people and other animals and explain how plants fulfill many of those needs.
- Ask children if plants get anything from animals. Explain that they get help with pollination and seed dispersal, as well as carbon dioxide that animals breathe into the air.

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