

Plant Power

植物的力量



By Kate Boehm Nyquist

Summary

Throughout history, humans have depended on plants to survive. Plants are used for many different purposes—for food, clothing, medicine—and they even produce the oxygen we breathe. There are many different types of plants, but all plants need air, water, nutrients, and light to live. Certain structures help plants get what they need. Roots, for example, anchor plants and absorb nutrients from soil. Many plants reproduce using seeds. Plants also have amazing ways of defending themselves. Some plants, for example, have thorns or chemicals that protect them.

Plants are an important resource for humans. Many scientists believe new medicines may be developed from plants growing in rain forests. Scientists are also working hard to develop easier,

more efficient ways to grow and use plants.

Science Background

Plants are classified according to how they reproduce: plants that make seeds and those that do not make seeds. Seed plants are divided into two categories: plants that produce flowers (angiosperms) and plants that do not produce flowers (gymnosperms). The majority of trees, bushes, and plants that we are familiar with are flowering plants (angiosperms). In fact, there are more than 250,000 species of angiosperms, compared with 50,000 of all other plant species. Flowering plants develop a fruit that surrounds the seeds. When we think of fruits, we often think of apples, oranges, or bananas. However, some vegetables, such as tomatoes, beans, peas, and squash, are also considered to be fruits.

Learning Objectives

Science

- Explain how plants need air, water, nutrients, and light to survive
- Identify plant structures and their functions in growth, survival, and reproduction
- Understand a plant's life cycle
- Recognize that all animals depend on plants to live
- Explain how plants make their own food

Process Skills

- Skill Focus**
 - Observing
- Supporting Skills**
 - Communicating
 - Investigating

Reading Skills

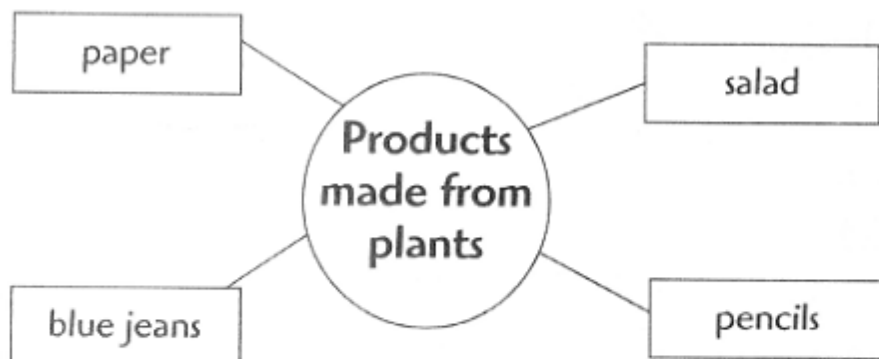
- Genre: Expository**
- Skill Focus**
 - Make and check predictions
 - Relate words
- Supporting Skills**
 - Main idea, details
 - Summarize
 - Self-question
 - Draw conclusions

Before Reading

Activate Prior Knowledge

Ask students to think about a typical day's activities. Explain that during a typical day we use plants and items made from plants so often that we don't even think about them. For example, we use cotton for many different types of clothing. Ask students to suggest other products made from plants. Create a web on the board to organize their ideas.

Students can complete a similar web in their notebooks, focusing on other products made from plants or ways people use plants. Have students share their ideas with the class.



Preview

Give students time to flip through the book, paying attention to chapter titles, photos, captions, and diagrams. Ask:

After reading the chapter titles and reviewing the photos on each chapter opener, what topics do you think will be included in this book?

What kinds of information do the sidebars and features provide?

Look at the diagrams on pages 10, 14, and 16. What do these diagrams show? What should you do if diagrams include words you don't understand?

Set Purpose

Ask students whether this book reminds them of other books they have read. Help students set a purpose for reading. Ask:

What do you want to find out from reading this book?

Encourage students to give reasons for their answers, using past experiences or images from the book as examples.

Vocabulary Strategy: Relate Words

Activity Master, Page 14

Have students turn to page 5 in the student book. Read the page to students and ask:

Why is it important to learn more about plants? (humans need plants to survive; plants are all around us; we can learn new ways to use plants; and so on.)

Explain to students that the vocabulary words they will be working with today all relate to plants in some way. Have students use *Plant Power* and a dictionary to write how each word relates to plants. Students will be using these words:

chlorophyll	stamen
conifer	taproot
photosynthesis	canopy

My Notes

Writing Skills

Writing Focus

- Write a letter to the editor (persuasive)

Supporting Skills

- Use the writing process
- Conduct research