# Real World Science: Seeds and Plants

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AIMS Multimedia is a leading producer and distributor of educational programs serving schools and libraries for nearly 40 years. AIMS draws upon the most up-to-date knowledge, existing and emerging technologies, and all of the instructional and pedagogical resources available to develop and distribute educational programs in film, videocassette, laserdisc, CD-ROM and CD-i formats.

Persons or schools interested in obtaining additional copies of this AIMS Teaching Module, please contact:

AIMS Multimedia

1-800-FOR-AIMS
1-800-367-2467
Congratulations!

You have chosen a learning program that will actively motivate your students AND provide you with easily accessible and easily manageable instructional guidelines designed to make your teaching role efficient and rewarding.

The AIMS Teaching Module provides you with a video program keyed to your classroom curriculum, instructions and guidelines for use, plus a comprehensive teaching program containing a wide range of activities and ideas for interaction between all content areas. Our authors, educators, and consultants have written and reviewed the AIMS Teaching Modules to align with the Educate America Act: Goals 2000.

This ATM, with its clear definition of manageability, both in the classroom and beyond, allows you to tailor specific activities to meet all of your classroom needs.
RATIONALE

In today’s classrooms, educational pedagogy is often founded on Benjamin S. Bloom’s “Six Levels of Cognitive Complexity.” The practical application of Bloom’s Taxonomy is to evaluate students’ thinking skills on these levels, from the simple to the complex: Knowledge (rote memory skills), Comprehension (the ability to relate or retell), Application (the ability to apply knowledge outside its origin), Analysis (relating and differentiating parts of a whole), Synthesis (relating parts to a whole), and Evaluation (making a judgment or formulating an opinion).

The AIMS Teaching Module is designed to facilitate these intellectual capabilities, AND to integrate classroom experiences and assimilation of learning with the students’ life experiences, realities, and expectations. AIMS’ learner verification studies prove that our AIMS Teaching Modules help students to absorb, retain, and to demonstrate ability to use new knowledge in their world. Our educational materials are written and designed for today’s classroom, which incorporates a wide range of intellectual, cultural, physical, and emotional diversities.
ORGANIZATION AND MANAGEMENT

To facilitate ease in classroom manageability, the AIMS Teaching Module is organized in four sections. You are reading Section 1, Introduction to the Aims Teaching Module (ATM).

SECTION 2, INTRODUCING THIS ATM will give you the specific information you need to integrate the program into your classroom curriculum.

SECTION 3, PREPARATION FOR VIEWING provides suggestions and strategies for motivation, language preparedness, readiness, and focus prior to viewing the program with your students.

SECTION 4, AFTER VIEWING THE PROGRAM provides suggestions for additional activities plus an assortment of consumable assessment and extended activities, designed to broaden comprehension of the topic and to make connections to other curriculum content areas.
FEATURES

INTRODUCING EACH ATM

SECTION 2

Your AIMS Teaching Module is designed to accompany a video program written and produced by some of the world’s most credible and creative writers and producers of educational programming. To facilitate diversity and flexibility in your classroom, your AIMS Teaching Module features these components:

Themes

The Major Theme tells how this AIMS Teaching Module is keyed into the curriculum. Related Themes offer suggestions for interaction with other curriculum content areas, enabling teachers to use the teaching module to incorporate the topic into a variety of learning areas.

Overview

The Overview provides a synopsis of content covered in the video program. Its purpose is to give you a summary of the subject matter and to enhance your introductory preparation.

Objectives

The ATM learning objectives provide guidelines for teachers to assess what learners can be expected to gain from each program. After completion of the AIMS Teaching Module, your students will be able to demonstrate dynamic and applied comprehension of the topic.
PREPARATION FOR VIEWING

SECTION 3
In preparation for viewing the video program, the AIMS Teaching Module offers activity and/or discussion ideas that you may use in any order or combination.

Introduction To The Program
Introduction to the Program is designed to enable students to recall or relate prior knowledge about the topic and to prepare them for what they are about to learn.

Introduction To Vocabulary
Introduction to Vocabulary is a review of language used in the program: words, phrases, usage. This vocabulary introduction is designed to ensure that all learners, including limited English proficiency learners, will have full understanding of the language usage in the content of the program.

Discussion Ideas
Discussion Ideas are designed to help you assess students’ prior knowledge about the topic and to give students a preview of what they will learn. Active discussion stimulates interest in a subject and can motivate even the most reluctant learner. Listening, as well as speaking, is active participation. Encourage your students to participate at the rate they feel comfortable. Model sharing personal experiences when applicable, and model listening to students’ ideas and opinions.

Focus
Help learners set a purpose for watching the program with Focus, designed to give students a focal point for comprehension continuity.

Jump Right In
Jump Right In provides abbreviated instructions for quick management of the program.

AFTER VIEWING THE PROGRAM

SECTION 4
After your students have viewed the program, you may introduce any or all of these activities to interact with other curriculum content areas, provide reinforcement, assess comprehension skills, or provide hands-on and in-depth extended study of the topic.
The Suggested Activities offer ideas for activities you can direct in the classroom or have your students complete independently, in pairs, or in small work groups after they have viewed the program. To accommodate your range of classroom needs, the activities are organized into skills categories. Their labels will tell you how to identify each activity and help you correlate it into your classroom curriculum. To help you schedule your classroom lesson time, the AIMS hourglass gives you an estimate of the time each activity should require. Some of the activities fall into these categories:

**Meeting Individual Needs**

These activities are designed to aid in classroom continuity. Reluctant learners and learners acquiring English will benefit from these activities geared to enhance comprehension of language in order to fully grasp content meaning.

**Curriculum Connections**

Many of the suggested activities are intended to integrate the content of the ATM program into other content areas of the classroom curriculum. These cross-connections turn the classroom teaching experience into a whole learning experience.

**Critical Thinking**

Critical Thinking activities are designed to stimulate learners’ own opinions and ideas. These activities require students to use the thinking process to discern fact from opinion, consider their own problems and formulate possible solutions, draw conclusions, discuss cause and effect, or combine what they already know with what they have learned to make inferences.

**Cultural Diversity**

Each AIMS Teaching Module has an activity called Cultural Awareness, Cultural Diversity, or Cultural Exchange that encourages students to share their backgrounds, cultures, heritage, or knowledge of other countries, customs, and language.

**Hands On**

These are experimental or tactile activities that relate directly to the material taught in the program. Your students will have opportunities to make discoveries and formulate ideas on their own, based on what they learn in this unit.

**Writing**

Every AIMS Teaching Module will contain an activity designed for students to use the writing process to express their ideas about what they have learned. The writing activity may also help them to make the connection between what they are learning in this unit and how it applies to other content areas.

**In The Newsroom**

Each AIMS Teaching Module contains a newsroom activity designed to help students make the relationship between what they learn in the classroom and how it applies in their world. The purpose of In The Newsroom is to actively involve each class member in a whole learning experience. Each student will have an opportunity to perform all of the tasks involved in production: writing, researching, producing, directing, and interviewing as they create their own classroom news program.

**Extended Activities**

These activities provide opportunities for students to work separately or together to conduct further research, explore answers to their own questions, or apply what they have learned to other media or content areas.

**Link to the World**

These activities offer ideas for connecting learners’ classroom activities to their community and the rest of the world.

**Culminating Activity**

To wrap up the unit, AIMS Teaching Modules offer suggestions for ways to reinforce what students have learned and how they can use their new knowledge to enhance their world view.
VOCABULARY

Every ATM contains an activity that reinforces the meaning and usage of the vocabulary words introduced in the program content. Students will either read or find the definition of each vocabulary word, then use the word in a written sentence.

CHECKING COMPREHENSION

Checking Comprehension is designed to help you evaluate how well your students understand, retain, and recall the information presented in the AIMS Teaching Module. Depending on your students’ needs, you may direct this activity to the whole group yourself, or you may want to have students work on the activity page independently, in pairs, or in small groups. Students can verify their written answers through discussion or by viewing the video a second time. If you choose, you can reproduce the answers from your Answer Key or write the answer choices in a Word Bank for students to use. Students can use this completed activity as a study guide to prepare for the test.

CONSUMABLE ACTIVITIES

The AIMS Teaching Module provides a selection of consumable activities, designed to specifically reinforce the content of this learning unit. Whenever applicable, they are arranged in order from low to high difficulty level, to allow a seamless facilitation of the learning process. You may choose to have students take these activities home or to work on them in the classroom independently, in pairs or in small groups.

CHECKING VOCABULARY

The Checking Vocabulary activity provides the opportunity for students to assess their knowledge of new vocabulary with this word game or puzzle. The format of this vocabulary activity allows students to use the related words and phrases in a different context.

TEST

The AIMS Teaching Module Test permits you to assess students’ understanding of what they have learned. The test is formatted in one of several standard test formats to give your students a range of experiences in test-taking techniques. Be sure to read, or remind students to read, the directions carefully and to read each answer choice before making a selection. Use the Answer Key to check their answers.
ADDITIONAL AIMS MULTIMEDIA PROGRAMS

After you have completed this AIMS Teaching Module you may be interested in more of the programs that AIMS offers. This list includes several related AIMS programs.

ADDITIONAL READING SUGGESTIONS

AIMS offers a carefully researched list of other resources that you and your students may find rewarding.

ANSWER KEY

Reproduces tests and work pages with answers marked.
THEMES

The themes of evolution and development is explored in this program by illustrating various plant structures and functions. The theme of interdependence among plants and animals for food, oxygen and carbon dioxide is also presented.

OVERVIEW

This program helps students become more aware that plants are all around us and that humankind relies on them to live. They make the world more beautiful, provide food and medicine and the oxygen in the air we breathe. Inter-relationships in the environment such as that between seeds and plants, and plants, animals and humankind are explained and illustrated. Specific parts of plants and their function are also described.

OBJECTIVES

- To identify the various uses of plants
- To identify parts and functions of plants
- To define and apply plant related vocabulary
- To explain the plant cycle
Use this page for your individual notes about planning and/or effective ways to manage this AIMS Teaching Module in your classroom.
INTRODUCTION TO THE PROGRAM

Ask the following questions to help you assess what students know about seeds and plants, and to also give them a preview of what they will learn. What qualities and characteristics do plants have? How do they reproduce? What does a plant need to grow?

INTRODUCTION TO VOCABULARY

Write the following vocabulary words on the chalkboard and pronounce each word aloud: botanist, chlorophyll, flower, germination, osmosis, photosynthesis, pistil, pollination, root, seed coat, sepal, stamen, stem, stigma, and xylem. Explain that these words will be used in the program they will be viewing and used in several follow up activities. Encourage students to note each word and its definition as it is presented.

DISCUSSION IDEAS

Ask students to name some of their favorite plants and write their responses on the chalkboard. Encourage them to think of the different kinds of plants, such as plants that are used for food, pleasure, or products we use as they respond. Explain that many different plants will be presented in the program.

FOCUS

As they view the program, have students think about the similarities and differences between plants and animals such as where they live, what they need to grow and live and how they reproduce.
JUMP RIGHT IN

HOW TO USE THE REAL WORLD SCIENCE: SEEDS AND PLANTS AIMS TEACHING MODULE

Preparation

- Read Real World Science: Seeds and Plants Themes, Overview, and Objectives to become familiar with program content and expectations.

- Use Preparation for Viewing suggestions to introduce the topic to students.

Viewing REAL WORLD SCIENCE: SEEDS AND PLANTS

- Set up viewing monitor so that all students have a clear view.

- Depending on your classroom size and learning range, you may choose to have students view Real World Science: Seeds and Plants together or in small groups.

- Some students may benefit from viewing the video more than one time.

After Viewing REAL WORLD SCIENCE: SEEDS AND PLANTS

- Select Suggested Activities that integrate into your classroom curriculum. If applicable, gather materials or resources.

- Choose the best way for students to work on each activity. Some activities work best for the whole group. Other activities are designed for students to work independently, in pairs, or in small groups. Whenever possible, encourage students to share their work with the rest of the group.

- Duplicate the appropriate number of Vocabulary, Checking Comprehension, and consumable activity pages for your students.

- You may choose to have students take consumable activities home, or complete them in the classroom, independently, or in groups.

Administer the Test to assess students’ comprehension of what they have learned, and to provide them with practice in test-taking procedures.

- Use the Culminating Activity as a forum for students to display, summarize, extend, or share what they have learned with each other, the rest of the school, or a local community organization.
SUGGESTED ACTIVITIES

Critical Thinking

Remind students that green plants make their own food. Plants need carbon dioxide from the air, water and minerals from the soil, and energy from the sun. Divide students into three groups, each assigned to develop an experiment that will show what happens when a green plant is denied one of these three requirements to make food. Remind groups to write their hypothesis, list the materials needed, and the steps in the experiment. Allow student's time to conduct the experiments and report their findings to the class.

Hands On

Assign students into small groups to create and label a large drawing of a plant. The following tasks should be distributed among group members: identify plant to present, draw and color, identify plant parts, define plant parts, and label plant parts. Encourage groups to chose different kinds of plants. Display the drawings in the classroom. Lead a discussion focusing on the similarities and differences among the plants represented.

Cultural Awareness

Brainstorm with the class, a list of ten non-technical words associated with plants and seeds such as the names of certain foods or flowers. Determine which language or languages the class would like to learn more about. Using one or more foreign language dictionaries, have them create a glossary of plant words and then have students share their translations with the class. Record the words on the chalkboard, noting similarities in spelling or pronunciation among them. Encourage students to determine how the different words might be linked for example, they may be words from a romance or an Arabic language.

Meeting Individual Needs

Many technical words are used in this program. Have students make an illustrated dictionary of the vocabulary words and any other words with which they may be having difficulty. These illustrations can be hand drawn or taken from magazines or downloaded from the Internet.

Writing

Have students replay the sequence in the video on plant germination or use another resource to review the steps in this process. Using this information, have students write and describe the process clearly and sequentially.
Extended Activity

Ask students to look carefully at home, at school, and in the community and make a list of the plants they find. Have them categorize the plants according to criterion that you identify such as annual, evergreen etc. Allow time for students to share their list with the class. Discuss the findings and have students develop some generalizations about the plant life in your community.

Connection to Mathematics

Seeds come in all shapes and sizes. Have students collect a variety of seeds - from seed packets, fruits, vegetables, and the outdoors. Encourage students to identify each kind of seed that they bring in. Assign students into pairs. Have one student measure the length of a seed, and the second record the measurement. You may wish to have students tape or paste their seeds on a sheet of paper, label it and note the measurements. If possible, have students draw or paste a picture of the mature plant on the same sheet of paper. You may wish to display these pages in the classroom.

Link to the World

You may wish to invite a botanist, nurseryman, farmer, herbalist, or another member of your community who works with plants to visit your classroom. Assign students the responsibility to greet the guest, develop questions to ask, and write a follow up thank you letter.

In the Newsroom

A feature story is an interesting story about a person, place, or event that does not have news value. Assign students into small group to look through magazines and newspapers or look for on-line stories about unusual plants, people who work with plants, gardening, and so on. Have each group present its story to the class.
Culminating Activity

Explain that your class has been challenged by the local television station to present a 10 minute informative and entertaining program to young Saturday morning viewers on seeds and plants. Assign students into groups to plan skits, songs, quiz games, visuals and so on for the program. Remind students to keep in mind their audience, medium and time frame, as they develop their program. You may wish videotape their program to show to other classes.
VOCABULARY

Read the sentences below. Use the vocabulary words to choose the best word to complete each sentence. Write the correct word in the space provided. You may use a dictionary to help you.

botanist  chlorophyll  flower  germination  osmosis
photosynthesis  pistil  pollination  root  seed coat
sepal  stamen  stem  stigma  xylem

1. The part of the plant that contains its reproductive organs is the ________________________.
2. The ________________________ supports the leaves and flowers of a plant.
3. Nutrients move the from the soil to the root of a plant in a process called________________________.
4. The part of the plant that holds the ovule is the ________________________.
5. A  ________________________  is a scientist who studies plants.
6. ________________________   is the  green pigment inside a plant.
7. A new plant sprouting from a seed or spore is called  ________________________.
8. Green plants  make food from carbon dioxide, water and sunlight in a process called  ________________________.
9. A ________________________ is the male reproductive organ of a plant.
10. Bees and wind can help in the   ________________________ of  plants by transferring pollen from one flower to another.
11. The ________________________ helps to hold a plant in the ground.
12. Pollen is deposited on the top part of the pistil called the ________________________.
13. Long tubes that carry water from the stem of a plant are called ________________________.
14. Seeds are protected from danger by the ________________________.
15. The ________________________ protects the petals when a flower is in bud.
CHECKING COMPREHENSION

Read and answer the following questions about plants and seeds. Write your answers on a separate sheet of paper.

1. How does a root help a plant to live and grow?

2. What is osmosis?

3. List the five different kinds of stems.

4. Name the three parts of a seed and describe how each part works.

5. How do leaves make food for the plant? Use these words in your explanation: photosynthesis, chlorophyll, energy, absorb, carbon dioxide and oxygen

6. What does xylem do?

7. What three things are needed for a seed to germinate?

8. Name the two kinds of leaves.

9. What do root hairs do and why are they important to a plant?

10. What is a botanist?
PLAN A MENU

People eat different parts of different plants - the seeds, fruit, stem, leaf, flower, and root. Complete the following menu with at least two plant foods. Name the part of the plant that you are using in your meal.

Breakfast
Juice
Cereal

________________________________________________________________________________________________
________________________________________________________________________________________________

Lunch
Milk
Sandwich

________________________________________________________________________________________________
________________________________________________________________________________________________

Dinner
Water
Baked fish

________________________________________________________________________________________________
________________________________________________________________________________________________
RECORD BREAKERS

Here is a challenge for you and a partner. Using the encyclopedia, a dictionary or by searching the internet, try to find out about as many of these record-breaking plants as you can. Write your answers on this page.

Largest leaves
________________________________________________________________________________________________
________________________________________________________________________________________________

Largest living thing
________________________________________________________________________________________________
________________________________________________________________________________________________

Largest water plant
________________________________________________________________________________________________
________________________________________________________________________________________________

World's oldest living thing
________________________________________________________________________________________________
________________________________________________________________________________________________

First space plant
________________________________________________________________________________________________
PARTS OF A PLANT

Although plants come in all shapes and sizes, they share some common features - roots, stem, leaves, flower, and seeds. Draw a picture of a plant that includes all the parts listed. Next, label each part of the plant correctly. You may use a reference book to help you.
THE LIFE CYCLE

All seed plants go through the same life cycle. In the space provided below, draw an illustration of a seed plant going through the four stages of the life cycle. You may use a reference to help you.
**STEMS**

Stems give a plant support. There are many different kinds of stems. Write the letter in front of the description that best describes the named stem.

<table>
<thead>
<tr>
<th>Kind of Stem</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<td>woody stem</td>
<td>a. vine</td>
</tr>
<tr>
<td>climbing stem</td>
<td>b. grow along the ground</td>
</tr>
<tr>
<td>tuber</td>
<td>c. tree trunk</td>
</tr>
<tr>
<td>runner</td>
<td>d. an example is a daisy stem</td>
</tr>
<tr>
<td>upright</td>
<td>e. underground stem</td>
</tr>
</tbody>
</table>
Underline the phrase which best answers the question.

1. Which of the following is NOT a use of plants for humans?
   a. food
   b. carbon dioxide
   c. medicine
   d. fuel
   e. building materials

2. Where does a plant store its food?
   a. in the leaves
   b. in the roots
   c. in the stem
   d. in the flower
   e. none of the above

3. A potato is an example of a
   a. flower
   b. root
   c. underground stem
   d. leaf
   e. none of the above

4. Why are leaves important to plants?
   a. It is where food is stored.
   b. It is where water is stored.
   c. It gives the plant its color and makes it attractive to insects.
   d. It is where food is made.
   e. none of the above

5. Why is fruit important to plants?
   a. It is where food is stored.
   b. It is where water is stored.
   c. It protects a plant’s seeds.
   d. It is where food is made.
   e. none of the above

6. Which of the following does a plant need to make food?
   a. sun, water, oxygen
   b. sun, water and carbon dioxide
   c. sun, water, carbon dioxide and chlorophyll
   d. sun, water and chlorophyll
   e. none of the above
7. In order for a seed to germinate, it needs the right
   a. temperature, amount of water and oxygen
   b. temperature, amount of oxygen and carbon dioxide
   c. amount of oxygen and temperature
   d. temperature, and amount of water
   e. none of the above

8. Chlorophyll captures energy from
   a. water
   b. leaves
   c. carbon dioxide
   d. sunlight
   e. none of the above

9. Which of the following is NOT a part of a flower?
   a. petal
   b. stamen
   c. sepal
   d. pistil
   e. bud

10. Plants can be pollinated by
    a. bees
    b. the wind
    c. animals
    d. a and b
    e. none of the above
ADDITIONAL AIMS MULTIMEDIA PROGRAMS

You and your students might also enjoy these other AIMS Multimedia programs:

8253-EN-VID-JE3: “Recycle”
VOCABULARY

Read the sentences below. Use the vocabulary words to choose the best word to complete each sentence. Write the correct word in the space provided. You may use a dictionary to help you. ANSWERS APPEAR IN BOLD.

botanist  chlorophyll  flower  germination  osmosis
photosynthesis  pistil  pollination  root  seed coat
sepal  stamen  stem  stigma  xylem

1. The part of the plant that contains its reproductive organs is the **flower**.
2. The **stem** supports the leaves and flowers of a plant.
3. Nutrients move the from the soil to the root of a plant in a process called **osmosis**.
4. The part of the plant that holds the ovule is the **pistil**.
5. A **botanist** is a scientist who studies plants.
6. **Chlorophyll** is the green pigment inside a plant.
7. A new plant sprouting from a seed or spore is called **germination**.
8. Green plants make food from carbon dioxide, water and sunlight in a process called **photosynthesis**.
9. A **stamen** is the male reproductive organ of a plant.
10. Bees and wind can help in the **pollination** of plants by transferring pollen from one flower to another.
11. The **root** helps to hold a plant in the ground.
12. Pollen is deposited on the top part of the pistil called the **stigma**.
13. Long tubes that carry water from the stem of a plant are called **xylem**.
14. Seeds are protected from danger by the **seed coat**.
15. The **sepal** protects the petals when a flower is in bud.
CHECKING COMPREHENSION

Read and answer the following questions about plants and seeds. Write your answers on a separate sheet of paper. ANSWERS APPEAR IN BOLD.

1. How does a root help a plant to live and grow? It anchors it, helps to draw up nutrients from the soil and can store food.

2. What is osmosis? It is how plants draw water and nutrients from the soil into the roots.

3. List the five different kinds of stems. woody, upright, climbing, tuber and runner

4. Name the three parts of a seed and describe how each part works. The seed coat protects the seed. The embryo holds all of the parts needed to become a new plant. Stored food is used by the embryo to grow.

5. How do leaves make food for the plant? Use these words in your explanation: photosynthesis, chlorophyll, energy, absorb, carbon dioxide and oxygen Plants make their food through the process of photosynthesis. They use chlorophyll, an ingredient that captures energy from the sun. Using this energy and combining it with water and carbon dioxide, plants make all the food they need. A byproduct of this process is oxygen, something that animals and humans need to live.

6. What does xylem do? Xylem are tubes that carry water to the stem of a plant.

7. What three things are needed for a seed to germinate? the right amount of water, the right temperature and enough oxygen

8. Name the two kinds of leaves. needle-like and flat and broad

9. What do root hairs do and why are they important to a plant? Root hairs allow the roots to have more contact with the soil. This is important because this allows the plant to obtain more nutrients from the soil.

10. What is a botanist? a scientist who studies plants
PLAN A MENU

People eat different parts of different plants - the seeds, fruit, stem, leaf, flower, and root. Complete the following menu with at least two plant foods. Name the part of the plant that you are using in your meal. **ANSWER:** Responses will vary. For example: fruit, an apple; seed: corn, peas; stem: celery, potato, leaf spinach, lettuce; root: beets, onions; flower: cauliflower, broccoli

Breakfast

Juice

Cereal

________________________________________________________________________________________________

________________________________________________________________________________________________

Lunch

Milk

Sandwich

________________________________________________________________________________________________

________________________________________________________________________________________________

Dinner

Water

Baked fish

________________________________________________________________________________________________

________________________________________________________________________________________________
RECORD BREAKERS

Here is a challenge for you and a partner. Using the encyclopedia, a dictionary or by searching the internet, try to find out about as many of these record-breaking plants as you can. Write your answers on this page. **ANSWERS APPEAR IN BOLD.**

Largest leaves

**ANSWER:** The raffia palm has the largest leaves in the world. Its leaves measure up to 20 meters in length and are taller than most trees.

Largest living thing

**ANSWER:** The largest living thing is a Giant Sequoia tree in California name General Sherman. Its is 83 meters tall and measures 24.11 meters around the trunk.

Largest water plant

**ANSWER:** The giant water lily from the Amazon is the world's largest water plant. Its leaves can grow up to two meters across and are strong enough to support the weight of a child.

World's oldest living thing

**ANSWER:** Lichen from Antarctica is thought to be at least 10,000 years old.

First space plant

**ANSWER:** The first plant to flower and produce seeds in spaces is called Arabidopsis. It has a short life cycle - about 40 days. It was grown on board the Soviet Union's Salyut-7 space station in 1982.
PARTS OF A PLANT

Although plants come in all shapes and sizes, they share some common features - roots, stem, leaves, flower, and seeds. Draw a picture of a plant that includes all the parts listed. Next, label each part of the plant correctly. You may use a reference book to help you.

ANSWER: Plants and illustrations will vary, but each should include the five features mentioned: root, stem, leaves, flower and seed.
THE LIFE CYCLE

All seed plants go through the same life cycle. In the space provided below, draw an illustration of a seed plant going through the four stages of the life cycle. You may use a reference to help you.

ANSWER: Illustrations will vary, but should be a reasonable representation of germination, plant growth, seed formation and scattering.
### STEMS

Stems give a plant support. There are many different kinds of stems. Write the letter in front of the description that best describes the named stem. **ANSWERS APPEAR IN BOLD.**

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<td>upright</td>
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</tbody>
</table>
TEST

Underline the phrase which best answers the question.

1. Which of the following is NOT a use of plants for humans?
   a. food
   b. carbon dioxide
   c. medicine
   d. fuel
   e. building materials

2. Where does a plant store its food?
   a. in the leaves
   b. in the roots
   c. in the stem
   d. in the flower
   e. none of the above

3. A potato is an example of a
   a. flower
   b. root
   c. underground stem
   d. leaf
   e. none of the above

4. Why are leaves important to plants?
   a. It is where food is stored.
   b. It is where water is stored.
   c. It gives the plant its color and makes it attractive to insects.
   d. It is where food is made.
   e. none of the above

5. Why is fruit important to plants?
   a. It is where food is stored.
   b. It is where water is stored.
   c. It protects a plant's seeds.
   d. It is where food is made.
   e. none of the above

6. Which of the following does a plant need to make food?
   a. sun, water, oxygen
   b. sun, water and carbon dioxide
   c. sun, water, carbon dioxide and chlorophyll
   d. sun, water and chlorophyll
   e. none of the above
TEST (CONTINUED)

7. In order for a seed to germinate, it needs the right
   a. temperature, amount of water and oxygen
   b. temperature, amount of oxygen and carbon dioxide
   c. amount of oxygen and temperature
   d. temperature, and amount of water
   e. none of the above

8. Chlorophyll captures energy from
   a. water
   b. leaves
   c. carbon dioxide
   d. sunlight
   e. none of the above

9. Which of the following is NOT a part of a flower?
   a. petal
   b. stamen
   c. sepal
   d. pistil
   e. bud

10. Plants can be pollinated by
    a. bees
    b. the wind
    c. animals
    d. a and b
    e. none of the above