

PLANTS

UNIT OVERVIEW

Students get a chance to try out their “green thumbs” as they explore plants. Student notes suitable for an overhead projector explain much of the knowledge-based information contained in the unit. “Plant Discovery Worksheets” combine easy-to-do student experiments and related questions to help “cement in” concepts with “concrete” activities.

Optional activities are left up to the discretion of each teacher and provide flexibility as well as enrichment. The world of plants comes alive with this practical teaching package.

STUDENT ASSIGNMENTS AND ACTIVITIES

- | | | | |
|----|-------------------------------|---|---|
| 1. | Introductory Lesson | - | Plants Wordsearch |
| 2. | Seeds | - | Looking At Seeds - Discovery Worksheet |
| 3. | Roots | - | Rooting For Roots - Discovery Worksheet |
| 4. | Stems | - | Carnation Sensation - Discovery Worksheet |
| 5. | Leaves | - | Leaves At Work - Discovery Worksheet |
| 6. | Flowers | - | Flower Power - Discovery Worksheet |
| 7. | To Grow, A Plant Needs | - | Plants Crossword |
| 8. | Life Cycle Of A Plant | - | Life Cycle Of A Dandelion |
| 9. | Uses of Plants | - | Word Web |

OPTIONAL ACTIVITIES

1. **Plants Review**
2. **Tree Planting**
3. **Light the Way (A plant grows in a maze to find light)**
4. **Blocking Air (Air is needed for plant growth)**
5. **Just Add Water (Water is needed for plant growth)**
6. **Sweetened Leaves (Nutrients are needed for plant growth)**
7. **Growing Season (The effect of warmth on seed growth)**
8. **Flower Garden**
9. **Yam Jungle**
10. **Plant Pictograms**
11. **Trees of North America**
12. **Patchwork Leaves**



DISCOVERY WORKSHEETS

The Discovery Worksheets help to motivate students by providing hands-on experiments pertinent to the major concepts taught in this unit. Each activity uses readily available materials and follows a “Purpose, Materials, Procedure, Conclusions and Questions” format. The worksheets combine hands-on activities with written questions to make learning relevant, yet enjoyable, at the same time.

PART III - Seed Planting

1. Procedure: Place seeds about ½ inch deep in the soil and about 2 inches apart in the pot. Place the pots in a warm, sunny place and water just before the soil gets dry.
2. Date started _____
3. Predict which seeds will be the first to sprout. _____

Day	Observation

4. What do seeds need to grow?

5. What would you do differently if you did this experiment again? How would it affect your experiment?



CARNATION SENSATION

Name: _____

1. Purpose: The purpose of this experiment is to discover the uses of plant stems.
2. Materials: _____

3. Procedure: _____

4. Observations: What happened to the carnation after being in the colored water?

5. Draw and label what your experiment looked like.

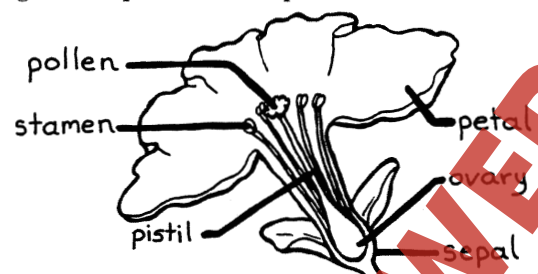
6. Conclusions: Why did this happen?

7. What are two purposes of plant stems?

FLOWER POWER

Name: _____

1. This is a diagram of a petunia and its parts.

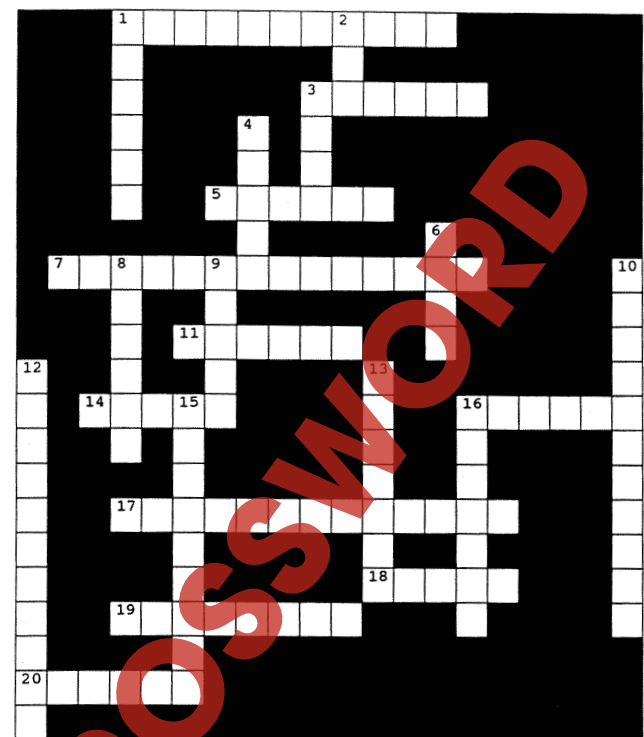


2. Dissect a flower. Pluck off the petals first.
 - a) How do the petals feel? _____
 - b) What color are the petals? _____
 - c) Are they the same color all over? _____
 - d) Name the yellow substance at the end of the stamen. _____
 - e) Find the pistil. Cut open the pistil's ovary to see the tiny eggs.
 - f) If the eggs join with a grain of pollen, what will they become? _____
 - g) Why is the tip of the pistil often sticky?

3. Pollination (Fill in the blanks below)
Pollen forms at the end of the _____. Pollen is _____ and powdery. Pollination happens when the _____ from the stamen of one flower reaches the _____ of another flower. The pollen travels from one flower to another by _____ or on the bodies of _____. Insects are attracted to flowers by their _____ and _____. While bees gather _____ from a flower (to make honey) they pick up _____ on their bodies and legs. They carry this pollen to other _____. After flowers have been pollinated they lose their _____. The ovary swells and develops into a _____ which contains the seeds inside.
4. Why are insects important to farmers and fruit growers?

PLANTS CROSSWORD

Name: _____



CLUES

Down

1. Yellow powdery grains that sometimes cause allergies.
2. This type of root is found in radishes and carrots.
3. Gives support, transports water.
4. This forms a fruit after pollination. Some plants are pollinated by animals - others are pollinated by this.
5. Plants produce this gas as a waste product when they make food.
6. These are made when pollen unites with egg cells.
7. A green chemical needed for photosynthesis.
8. Growing plants without soil.
9. This type of root is found in grass.
10. Nitrogen, potassium and phosphorus are examples of this.
11. Spruce trees and pine trees have this type of leaves.

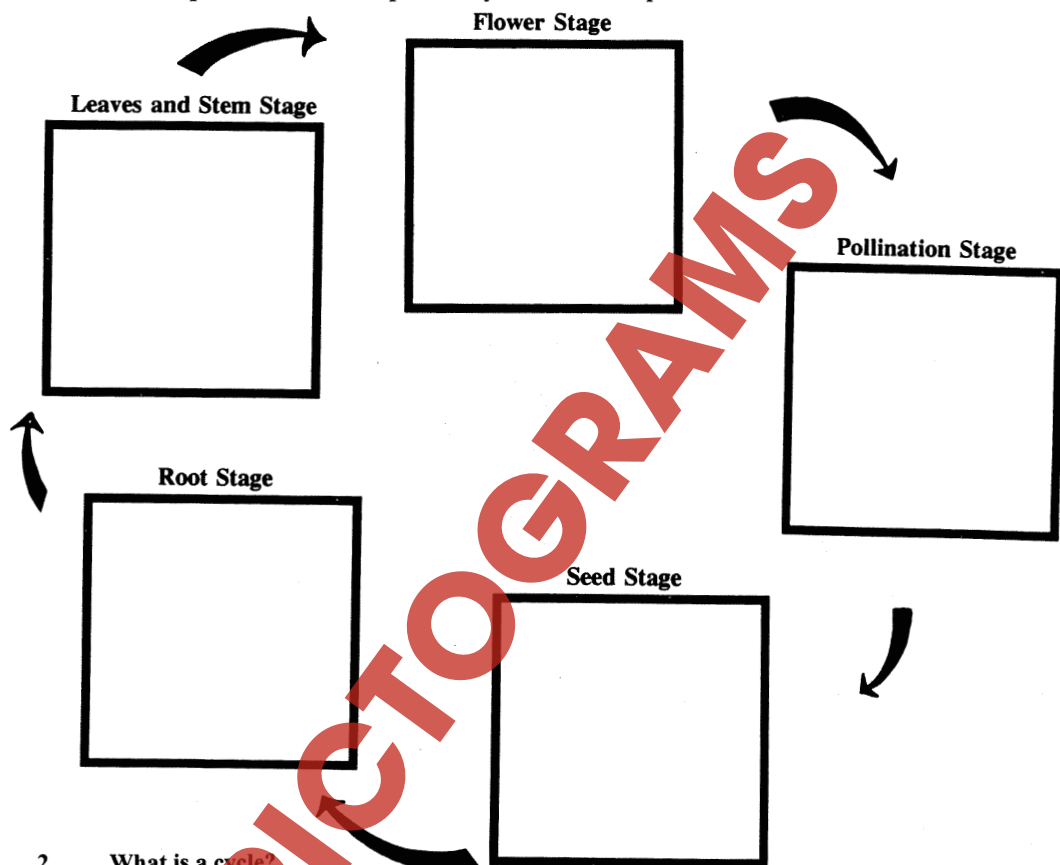
Across

1. When the pollen from one flower reaches the pistil of another, this occurs.
2. Ferns and moss use these to reproduce.
3. Needed to keep plants from "icing up".
4. "Making with light".
5. A type of attractive advertising for a flower.
6. These plant seeds might make you "root".
7. A bee's favourite.
8. This gas is used by plants to make food.
9. If a farmer had 14 apple trees and all but seven died, how many trees did the farmer have left?
10. Needed for photosynthesis to happen.
11. This desert plant has spiny leaves.

THE LIFE CYCLE OF A DANDELION

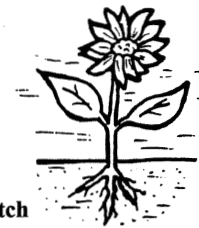
Name: _____

1. Draw a picture for each step in the cycle. Color the pictures.



2. What is a cycle?

3. Describe the life cycle of a bean plant.



PLANTS REVIEW

Name: _____

- I. Match
- | | |
|---|--------------------|
| a) Protects the seed | ___ OVARY |
| b) Absorbs water and nutrients from soil | ___ LEAVES |
| c) Part of the seed that grows into the stem and roots | ___ VEINS |
| d) Supports the plant, transports water | ___ NUTRIENTS |
| e) Contains the ovary and eggs | ___ PHOTOSYNTHESIS |
| f) Produces pollen | ___ ROOTS |
| g) A sweet liquid at the center of most flowers | ___ SEED LEAVES |
| h) Yellow, powdery grains containing sperm cells | ___ PETAL |
| i) Provides food for the seedling | ___ SEED COAT |
| j) "Food Factories" for the plant | ___ CELLULOSE |
| k) The reproduction center for the plant | ___ OXYGEN |
| l) Carbon Dioxide + Water + Sunlight = Sugar + Oxygen | ___ NECTAR |
| m) A useful product of photosynthesis | ___ POLLEN |
| n) A green chemical needed for photosynthesis | ___ STEM |
| o) Gas "breathed in" by plants during photosynthesis | ___ FLOWER |
| p) Used to transport food and water inside a leaf | ___ PISTIL |
| q) The colorful part of the flower | ___ EMBRYO |
| r) Plants are made up mostly of this | ___ CARBON DIOXIDE |
| s) Vitamins that the plant needs to grow | ___ STAMEN |
| t) This will develop into a fruit after the egg cell has joined with a sperm cell | ___ CHLOROPHYLL |

PLANT PICTOGRAMS

Name: _____

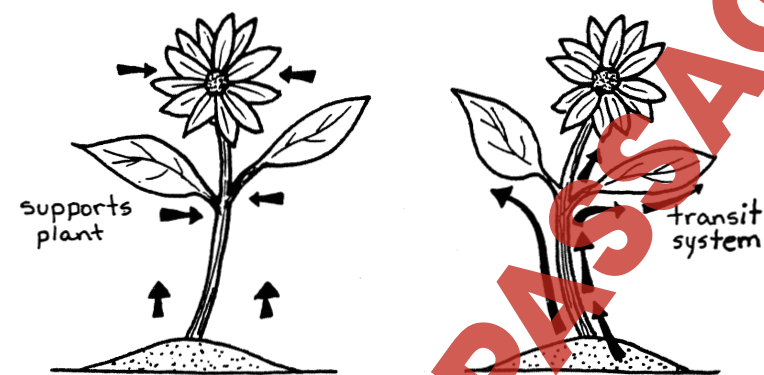
Instructions: Try to solve the following picture puzzles about plants:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

Parts of a Plant: Stem

One purpose of a stem is to help the plant stand up and to support the leaves and flowers of a plant. The stem helps to keep the leaves off the ground and in the sunshine.

A second purpose of the stem is to transport water and nutrients from the roots to the leaves where food is made.



Some plants have soft stems which die in the fall and sprout again in the spring. Others, such as trees and shrubs, have woody stems which last the entire lifetime of the plant.



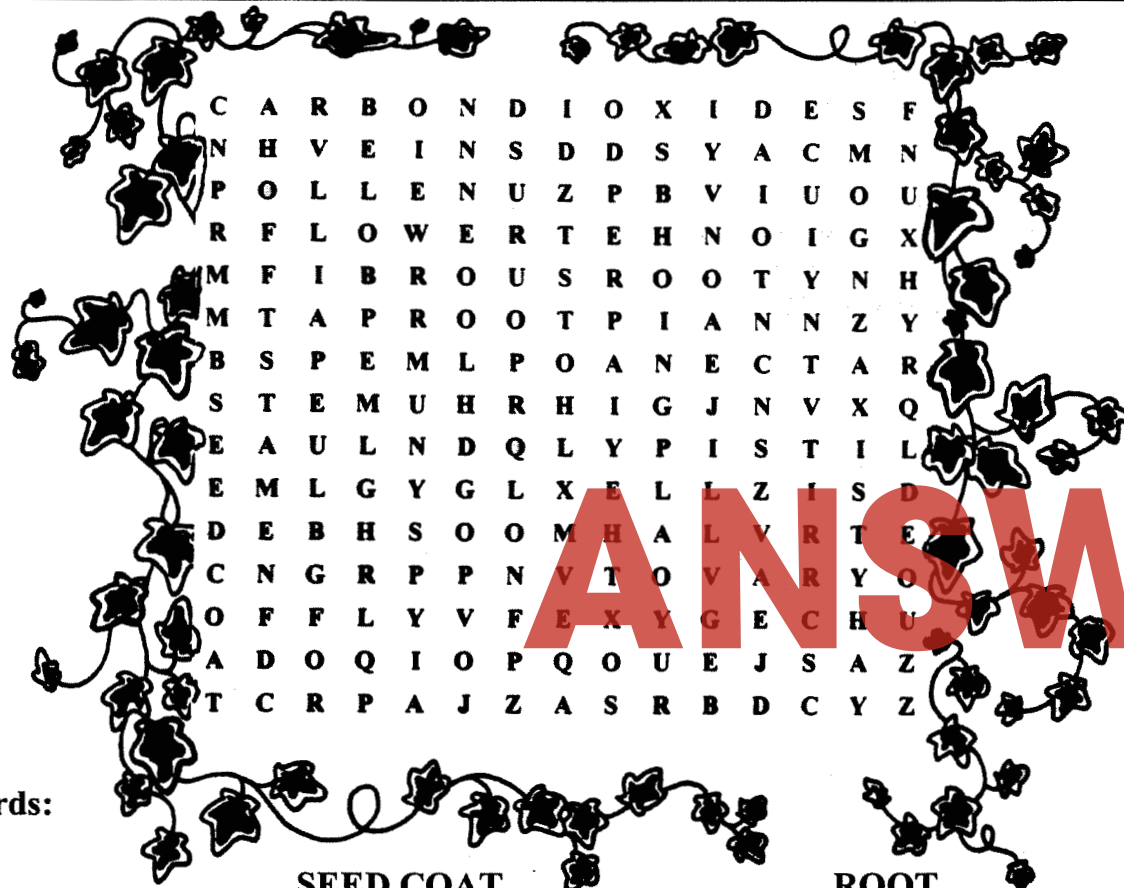
Factfile: The stem of the giant redwood tree found along the west coast of North America can be as long as 120 yards. The wood contained in a tree this large can provide lumber to build 24 brand new homes!

PLANTS WORDSEARCH

Name: _____

1. List three differences between plants and animals.
 - a) _____
 - b) _____
 - c) _____
2. List the five main parts of most plants.

| | |
|----------|----------|
| a) _____ | b) _____ |
| c) _____ | d) _____ |
| e) _____ | |
3. List two ways that plants are important to people.
 - a) _____
 - b) _____



Find These Words:

CELLULOSE
NUTRIENTS
FLOWER
OVARY
PETALS
CARBON DIOXIDE
CHLOROPHYLL
POLLINATION

SEED COAT
STEM
SEED
POLLEN
FIBROUS ROOT
SUGARS
EMBRYO
OXYGEN

ROOT
LEAVES
STAMEN
PISTIL
TAP ROOT
VEINS
NECTAR
HYDROPONICS

Unit #1 - INTRODUCTORY LESSON

Objectives and Activities

Students are introduced to the topic and complete notes from an overhead projector.

In an activity designed to familiarize students with some of the vocabulary of the unit, students complete an exercise, "Plants Wordsearch".

Additional Teaching Strategies

Throughout the unit, each lesson is introduced with a joke or riddle about plants. The first riddle is as follows:

- Clue 1 -** Some people might call me lazy because I don't like to move around to get my food.
- Clue 2 -** I like to sit around in the sun.
- Clue 3 -** Rain makes me smile.
- Clue 4 -** Take the letter "e" out of the word "planet" and you will solve this riddle.
- Answer** A Plant

Begin with student notes on the topics "What Are Plants?" and "Parts of a Plant", addressing the differences between animals and plants. (Student notes can be photocopied onto overhead transparencies, dictated or simply written on the board for students to copy into their science notebooks) The notes provide an information base from which students can study from and use to complete assignments.

After the notes have been explained and copied down, hand out the "Plants Wordsearch". The clues go horizontally, vertically and diagonally. The wordsearch also includes three questions about plants that require written answers.

Answers

Three differences are that plants do not move around to get food, plants are made up of cellulose, and plants can make their own food using water, air and sunlight. The five main parts of a plant are the roots, stem, leaves, flowers and seeds. Plants make oxygen for breathing and provide food. (Answers may vary)

