



Name: _____

Class Period: _____

BOTANY UNIT ANTICIPATION (The Study of Plants)

Section 1: Using complete sentences describe any information you know (or think you know) about Botany. (You need a minimum of 2 different responses or ideas described about Botany.)

Section 2: Using complete sentences describe any personal experience you have had with this topic. (This response must demonstrate some direct involvement such as, but not limited to planting, caring for, harvesting, etc. Responses such as looking at plants or you like to eat them are considered unacceptable. It is hoped that you can write about at least 1 experience.)

Section 3: Using complete sentences identify one question you have about Botany.

Name: _____ Date: _____ Class Period: _____

Eyewitness Plant Video

1. Even though plants can't run, jump, or howl and they don't have brains, plants create the _____ and _____.
2. How do most plant begin life? Dry and _____.
3. Name 2 "wake up calls" for plants to start growing? _____
4. The first parts of most plants to grow are their roots. What are the roots looking for? _____
5. Above ground shoots are trying to "capture" what? _____
6. Some trees can suck up _____ of water per day.
7. The oldest working gardens are in New Guinea. They are _____ years old.
8. What farm animals help with plowing the fields in this region? _____
9. For help in photosynthesis most leaves of plants contain _____.
10. What gas enters microscopic openings in leaves that let's them "breathe"? _____
11. As plants make their food, glucose, the gas waste product _____ is released and is required for all animal life.
12. Name one characteristic some cacti have to help them survive the harsh conditions of the desert?

13. Because cacti can store a lot of water, what can happen to them in a thunderstorm?

14. Why do some plant leaves, on top of mountains, have fuzz? _____

15. What happens to dandelion flowers when it rains? _____
16. What plant was London's Crystal Palace inspired by? _____
17. Kelp has the ability to grow in excess of _____ inches per day.
18. The ancient Greeks believed that the souls of the dead lived on in _____.
19. Identify one myth about plants.

④

Outline

Holt Chapter 4/Section 1

What is a Plant?

⑤

Outline

Holt Chapter 4/Section 2

Seedless Plants

⑥

Outline

Holt Chapter 4/Section 3

Seed Plants

Compare & Contrast

Angiosperms

Gymnosperms

ALIKE

DIFFERENT

	With regards to: Seeds	
--	---------------------------	--

	With regards to: Flowers	
--	-----------------------------	--

	With regards to: Fruit	
--	---------------------------	--

	With regards to: Types	
--	---------------------------	--

	With regards to: Pollination	
--	---------------------------------	--

	With regards to: Uses	
--	--------------------------	--

	With regards to:	
--	------------------	--

Conclusion:



Outline

Holt Chapter 4/Section 4

Structures of Seed Plants

Name: _____
Class: _____
Date: _____

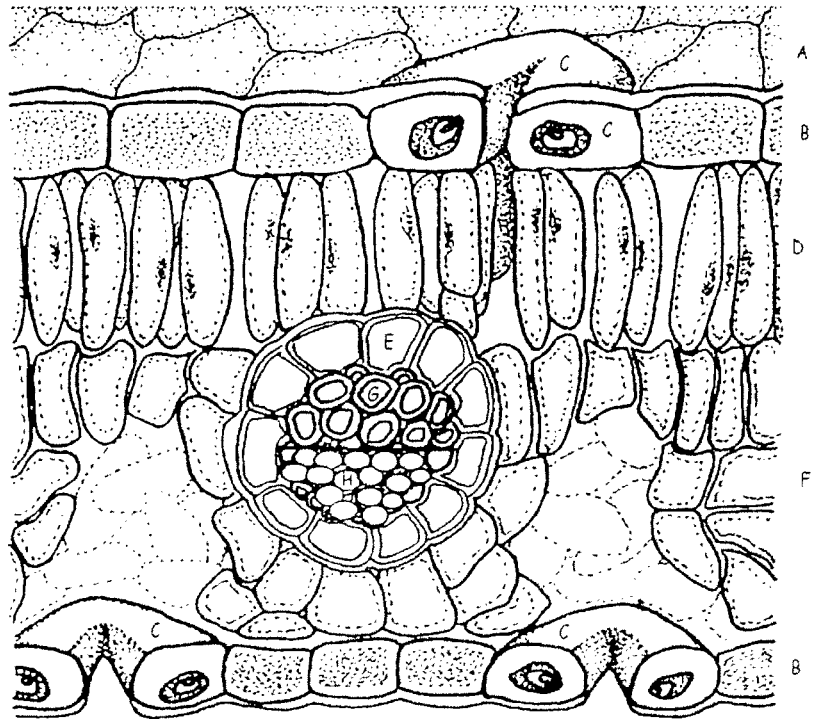
Leaf Structure

Step #1:

- A. Color each leaf layer as directed on the left side of the diagram.
- B. Inside of each box write the letter of the leaf layer identified on the list.

(Diagram courtesy of biologycorner.com)

- Cuticle (light blue)
- Epidermis (yellow)
- Guard cells (pink)
- Palisade Mesophyll (dark green)
- Phloem (purple)
- Xylem (orange)
- Spongy Mesophyll (light green)
- Bundle Sheath (dark blue)



Step 2:

For each identified layer on the following pages, place check marks in front of each phrase that most appropriately describes the specified layer.

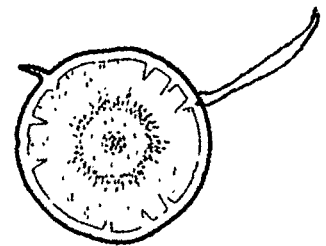
Root Structure and Function

Background Information: *(The information presented here is in addition to that presented in class and in your textbook.)* Roots play a vital role in the growth and day-to-day life of the vascular plant. They anchor plants to the ground. Roots also absorb, store, and transport water and dissolved minerals. They have small threadlike root hairs, extending from the sides, whose function it is to absorb water and dissolved minerals from the soil. Also extending from the side, though thicker and generally longer, are lateral roots. Often these lateral roots act as "scouts" searching for new nutrient rich areas of soil. The entire outside of the root is covered with a skin-like covering called an epidermis. Both lateral roots and root hairs grow out of the epidermis. Inside the epidermis is a section of large, loosely packed cells that store food. This is called the cortex. Other cells in the plant can use the food stored in the cortex during the growing season, as well as being the main food storage area for the plants that can't do photosynthesis during the winter. Going further toward the center of the root you will find the endodermis. This separates the cortex from the vascular section. The last area is the very core of the root that contains 2 different types of tube-like cells. The phloem transport food. Often the most inside section contain the xylem that transports water and dissolved minerals. The last area to be discussed is the root cap. This area of the root is responsible to penetrating through the soil.

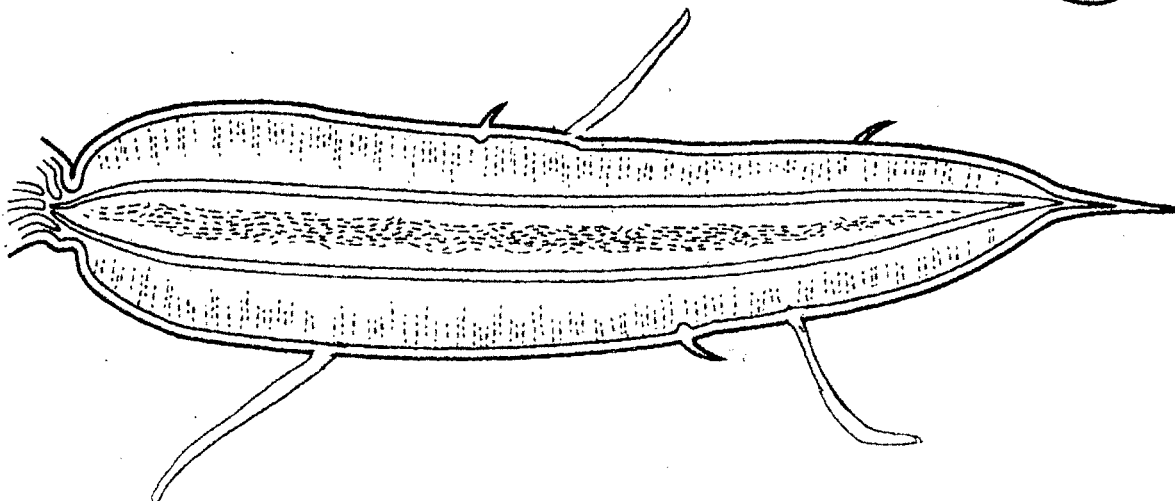
In this observation lab you will be given at least one type of taproot to view. Possible roots include carrot and parsley. You will be provided with both taproots cut lengthwise and cut crosswise. Your task is to color each of the layers, on both diagrams, with the specific colors indicated and then answer questions on the back page.

- | | | | | |
|------|---------------|--------------|------------|--|
| Key: | Lateral Roots | > yellow | Root Hairs | > orange |
| | Epidermis | > light blue | Cortex | > light green |
| | Endodermis | > Brown | Phloem | > Purple |
| | Xylem | > Red | Root Cap | > Circle the area with black-
only on lengthwise view |

Crosswise view:



Lengthwise view:



SECTION



Reinforcement

Seed Plants

List at least 3 differences between angiosperms and gymnosperms in the chart.

ANGIOSPERMS	GYMNOSPERMS

Meeting Individual Needs

Directions: Study the plants pictured below. On the line under each plant, write whether that plant is a monocot or a dicot.



3. _____



4. _____



5. _____



6. _____



7. _____

Directions: Answer the following questions on the lines provided.

8. What is a seed plant?

9. What are the functions of xylem and phloem?

10. What are some economic uses of gymnosperms?

12

Outline
Holt Chapter 5/Section 1
Photosynthesis

Name: _____
Class: _____
Date: _____

Photosynthesis Video

1. What were the first living things to capture sunlight over 3 billion years ago? _____

2. What was the problem with Earth's early atmosphere? _____

3. The scientist tells Anna that the leaf is similar to what type of food? _____

4. What is the general term meaning the middle of the leaf? _____

5. What is the "engine of the green machine" that makes photosynthesis possible? _____

6. What is the microscopic opening called in the lower epidermis? _____

7. Chlorophyll turns sunlight into what type of energy? _____

8. Can plants get sunlight if they live in the ocean? _____

9. If yes for #8, name an example and how it has adapted to get sunlight. _____

Outline
Glencoe Chapter 5/Section 2
**Aerobic Cellular
Respiration**

SECTION

1

Reinforcement

Photosynthesis and
Respiration

15

Directions: Answer the following questions on the lines provided.

1. a. What causes the stomata on leaves to open?

b. When are the stomata usually open?

c. What happens when stomata open?

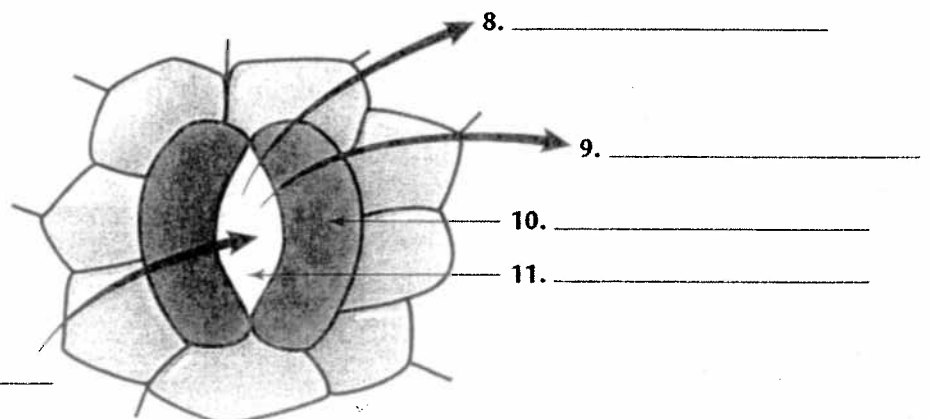
2. Why do plants need a lot of water?

3. Write the chemical equation for photosynthesis. Label the chemical compounds.

4. How do we depend on photosynthesis?

5. What is respiration?

6. Write the chemical equation for aerobic respiration. Label the chemical compounds.

Directions: Label the following diagram of an opening in a leaf. Label the arrows to show the movement of water vapor, carbon dioxide, and oxygen. Label the guard cells and the stoma.

Outline
Holt Chapter 5/Section 3
**Plant Responses to the
Environment**

E.C. 1

Review of the article
**“How Does A Tree
Absorb Water”**

Review of the article *E.C. 2*
“Helping Plants Grow”