

## 3. Plants

---

**BACKGROUND:** Plants are a part of our everyday world, but work differently from ourselves. Most of the terms I will use in lecture will be unfamiliar without looking at the structures and plant types in detail. Additionally, you may have previously heard of the confusion between scientific and common definitions of what is a "fruit." But did you know there is no scientific definition for a vegetable? We'll look at what these actually are.

### CONCEPTS

See lectures on [plant lifecycles](#) and [plant structure](#).

---

### **A.Plant lab prequiz**

What are the four major groups of vascular plants? Name a nonvascular plant. (outline 6.4)

Draw a diagram showing alternation of generations in plants. (Text, p346, 17.3)

Draw a diagram of the parts of a plant (Fig. 31.3), and the parts of a flower (Fig. 31.9B).

Name five plant cell types and their functions. (outline 7.2)

---

## **B.Plant cell types and structure**

GOALS: Observe plant cell types in a cross section of plant material to see how they contribute to plant structure.

### **1. Plant structure procedure**

1. Work in pairs.
2. Obtain a slide of a stem cross section
3. Observe the slide under the compound microscope and look for each cell type listed in the pre-quiz.
4. Draw a rough version of the cross section in the space provided below. Draw each cell type and label them.
5. Obtain and observe a leaf cross section. Do a sketch of this cross section and indicate where you find the cell types here.

### **2. Plant structure drawings**

Plant structure drawings, contd.

**1. How many of the same cell types were found in both cross sections? Did these look the same?**

**2. List the cell types found in each tissue layer**

VASCULAR

DERMAL

CORTEX

## B. Plant diversity and life cycles

GOALS: To be able to identify common plants to the major taxonomic groups

### 1. Plant diversity identification

1. Plant specimens are in your lab and elsewhere in the building. Your instructor will tell you where.
2. You have only 15 minutes to complete this exercise!
3. For each plant specimen, identify to which taxon it belongs and fill in the following table.

### 2. Table 3.1 Plant diversity table

Specimen	Name	Group? (Angiosperm, Gymnosperm, Pterophyta, Lycophyta, Bryophyta)
A	African Violet	
B	Horsetail	
C	Fern	
D	Cactus	
E	Moss	
F	Cycad	

### 3. Which plants were easiest to identify and why?

### 4. What characters made it easiest to identify each plant to a given group?

---

## C. Grocery store botany

GOALS: To examine common foods and identify whether each "vegetable" is a fruit, root, stem, leaf, petiole or flower.

### 1. Grocery store botany procedure

1. There are a selection of "vegetables" and "fruits" on the side bench
2. Your team will have an opportunity to examine these and fill out the table below.
3. If a certain fruit or vegetable is not available, skip it and you will discuss it as a class.
4. It probably does not need to be said, but please don't eat these. They have been sitting on countertops upon which other classes are dissecting cats. Not to mention that they have been handled by about 200 of your classmates!

**2. Table 3.2 Grocery store botany results**

"Vegetable" (or "fruit")	Plant part? (stem, leaf, petiole, root, flower)
Apple	
Lettuce	
Celery	
Squash/Cucumber	
Broccoli	
Beans	
Sweet potato	
Onion	
Asparagus	
Carrot	
Walnut	

**3. What "vegetable" was the hardest to identify to a particular plant part? Why?**

**4. Were certain plant parts less common as vegetables than other parts? Why do you think this is?**