

Build it

Using the LEGO bricks at this table, create either an animal or plant cell model. The following organelles need to be depicted in your model:

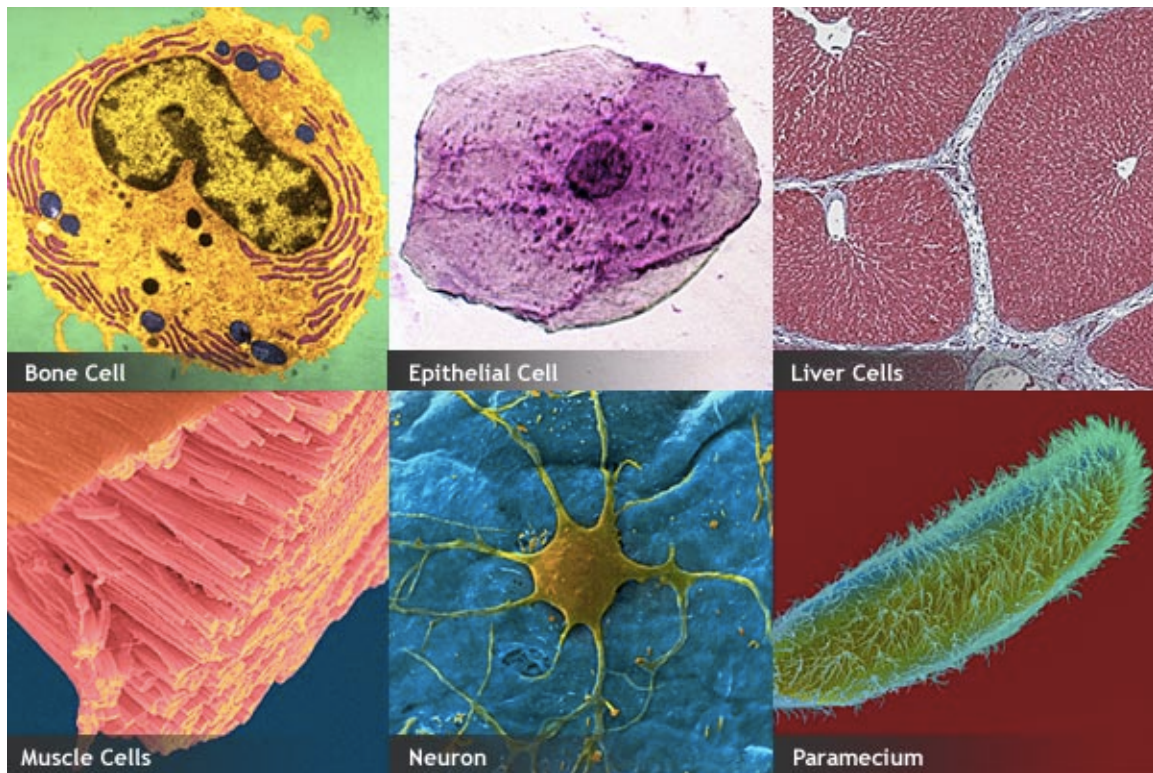
- Nucleus
- Cytoplasm
- Vacuole
- Mitochondria
- Cell Membrane/Wall
- Endoplasmic reticulum
- Golgi apparatus
- Chloroplast (plant cell)

When you are finished, draw your model and call me over.



Explore it

You will explore new research involving different types of cells, read about how cells in the human body work, and write a summary of one of the topics you researched.



Look at the research questions below and as a group decide on one to investigate:

1. What do researchers think is one cause of memory impairment related to growing older? What does new research show that may be able to help reverse this process?
2. How might fat cells be able to help people with spinal cord injuries?
3. How are frog eggs being used in research involving human cells?
4. What are Schwann cells? How are they affected in multiple sclerosis patients?
5. What role do cells play in preventing the stomach from digesting itself?

Keep in mind that not all Web sites are written specifically for students. Some of what you read might be challenging. Look for information that will be useful in completing this activity.

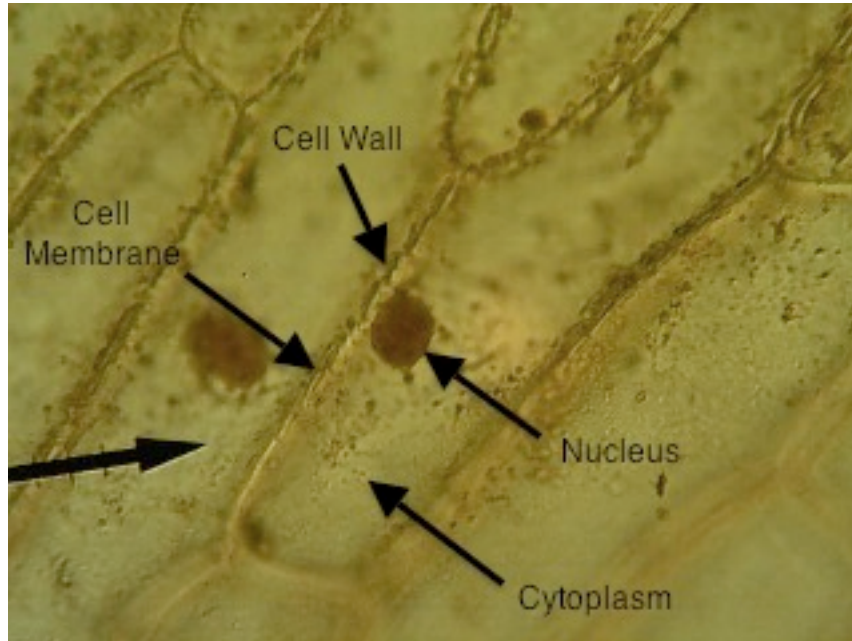
When you are finished investigating, summarize your findings.

Experience it

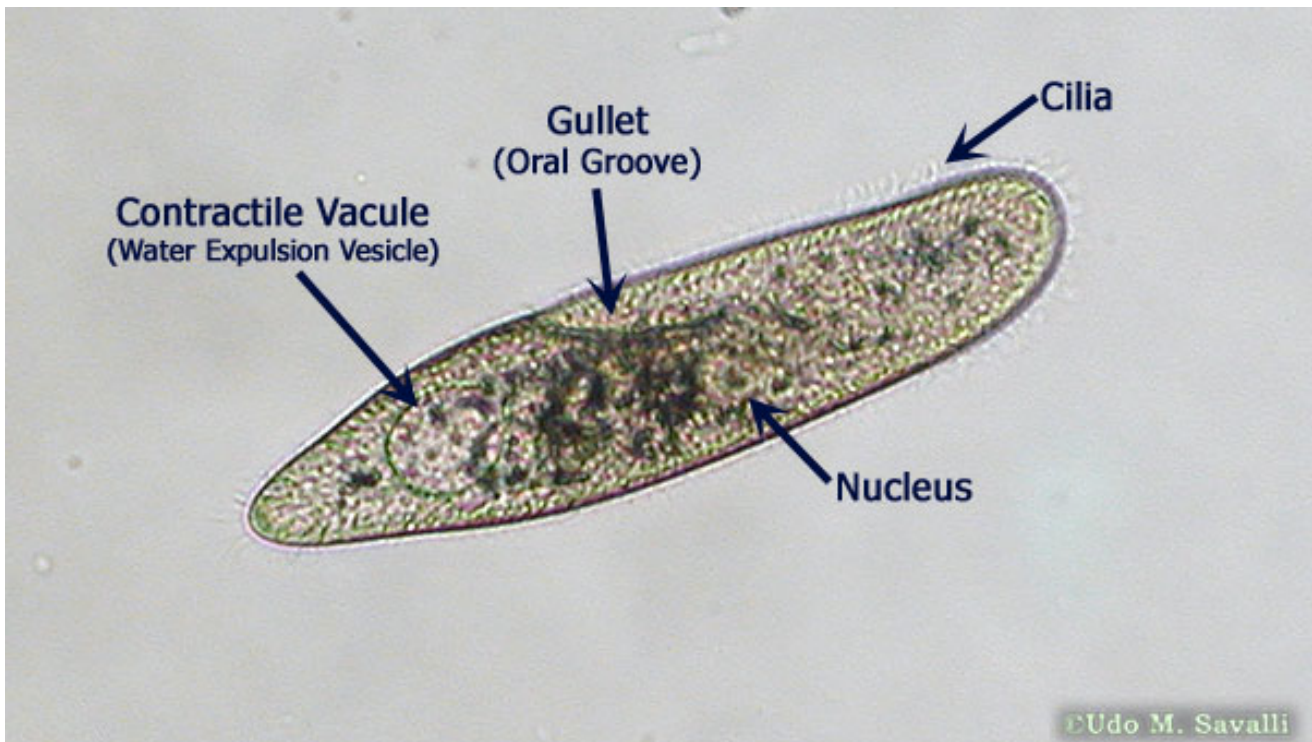
You will be observing and comparing four different cells using a light microscope: Paramecium, Wowbug (parasitic wasp), Onion, Elodea. Some of these cells could be prokaryotic and some could be eukaryotic. Some of the eukaryotic cells are animal and some are plant cells.

Use the pictures below to help you find the correct image under the microscope:

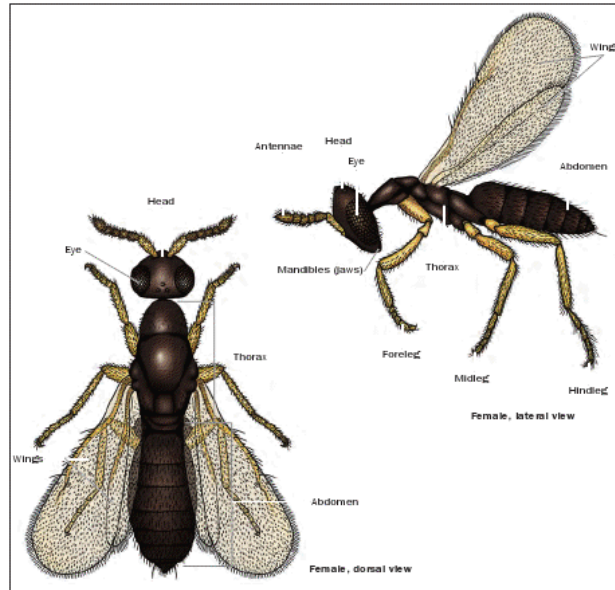
Onion:



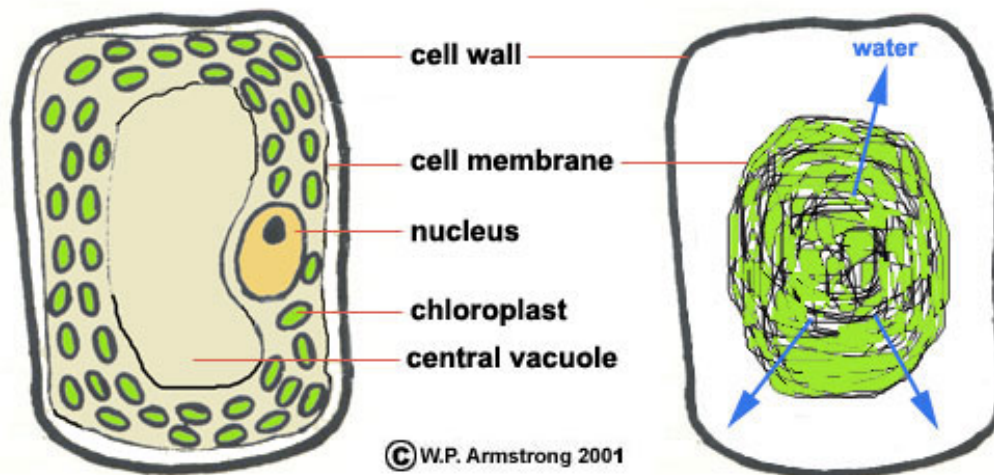
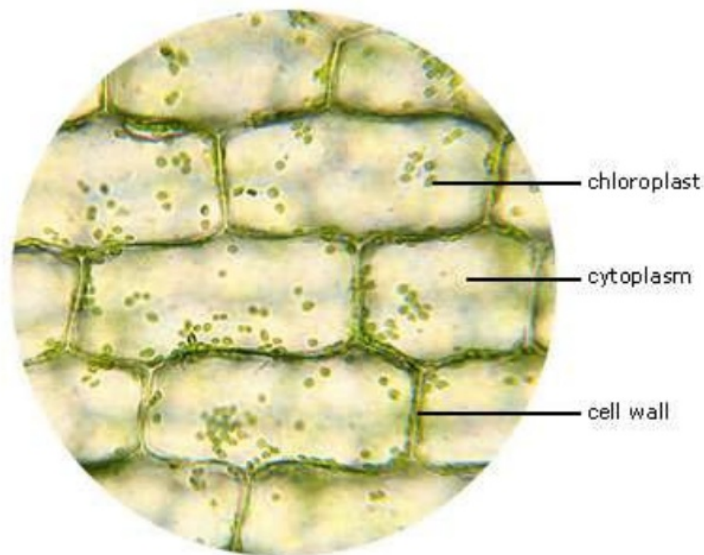
Paramecium:



Wowbug:



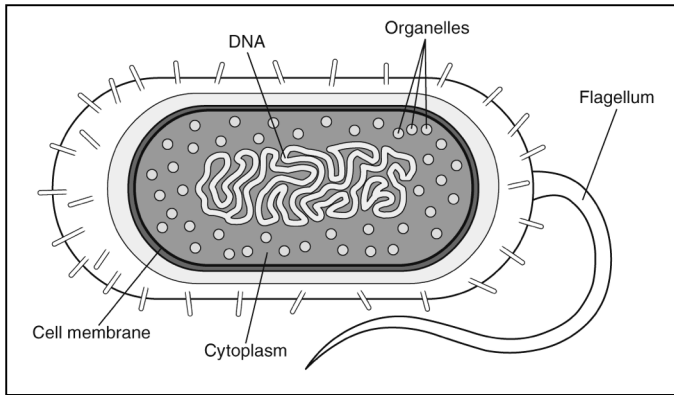
Elodea:



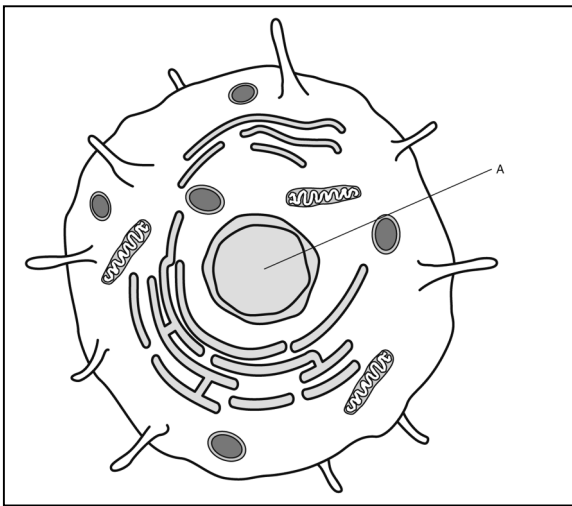
Reflect on it

Question 1:

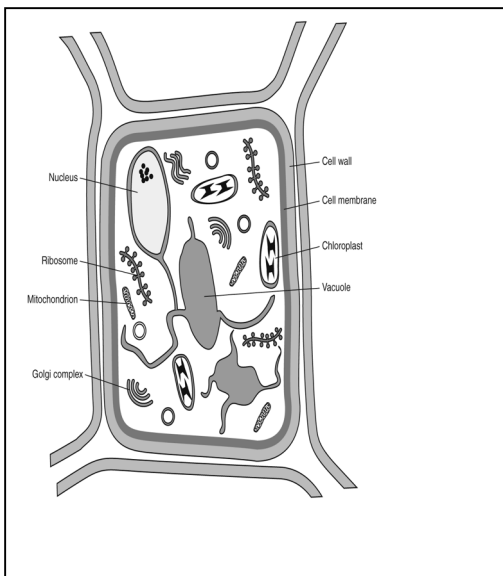
Cell A



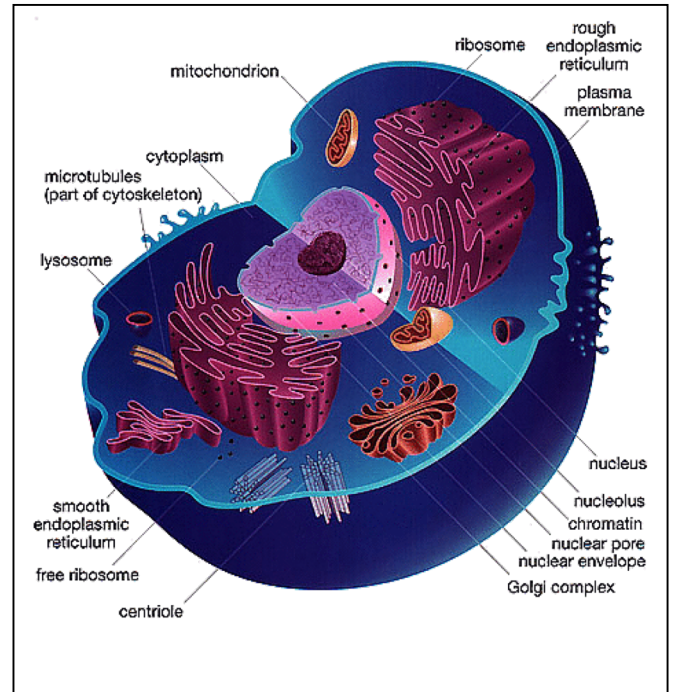
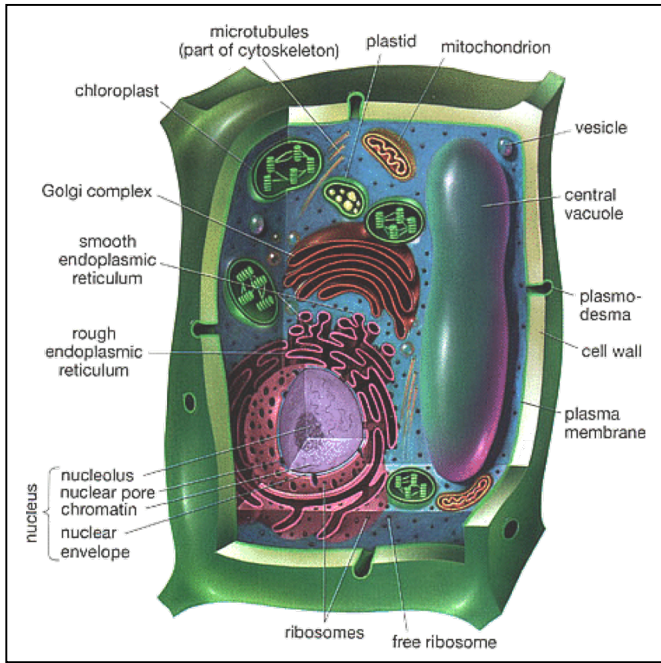
Cell B



Cell C



Question 2



Question 3

Word Bank

nucleus
cell membrane
vacuole
chloroplast

ribosomes
cell wall
endoplasmic reticulum
cytoplasm

mitochondria
Golgi apparatus

Build it

Draw your LEGO model below:

Explore it

Research question:

Summary:

Reflect on it

1. Look at the pictures on the laminated sheets. What type of cell is this?

A. _____

B. _____

C. _____

2. What are two things that plant cells have that animal cells do not have?

_____ and

What are five things that plant and animal cells have in common?

_____, _____, _____,

_____, _____

3. Match the organelle with the function.

A. The powerhouse of the cell where energy is made: _____.

B. The organelle responsible for making proteins: _____.

C. The DNA in a eukaryotic cell is found in the "brain": _____.

D. The area of the cell that regulates what enters/exits: _____.

4. What are the three parts of the cell theory?

A. All organisms are composed of _____.

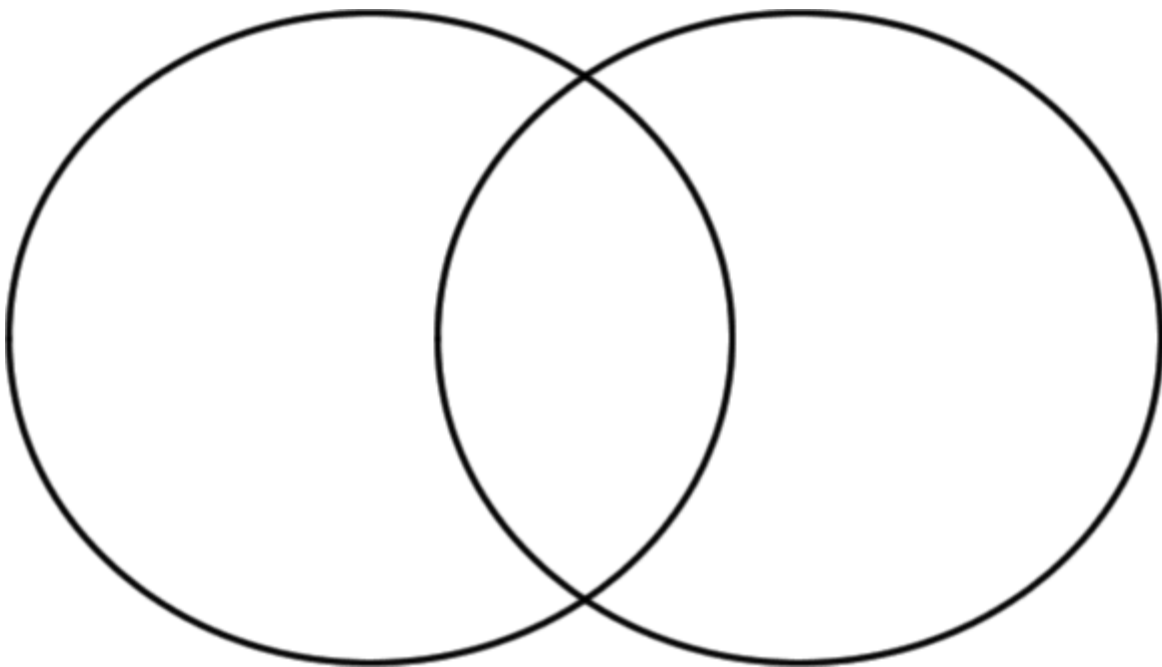
B. All cells come from _____.

C. _____ are the basic unit of life.

Experience it

Prelab Questions

1. How can you tell the difference between a prokaryotic and eukaryotic cell?
2. Fill out the Venn diagram below to show the differences and similarities between plant and animal cells:



Part A - Onion

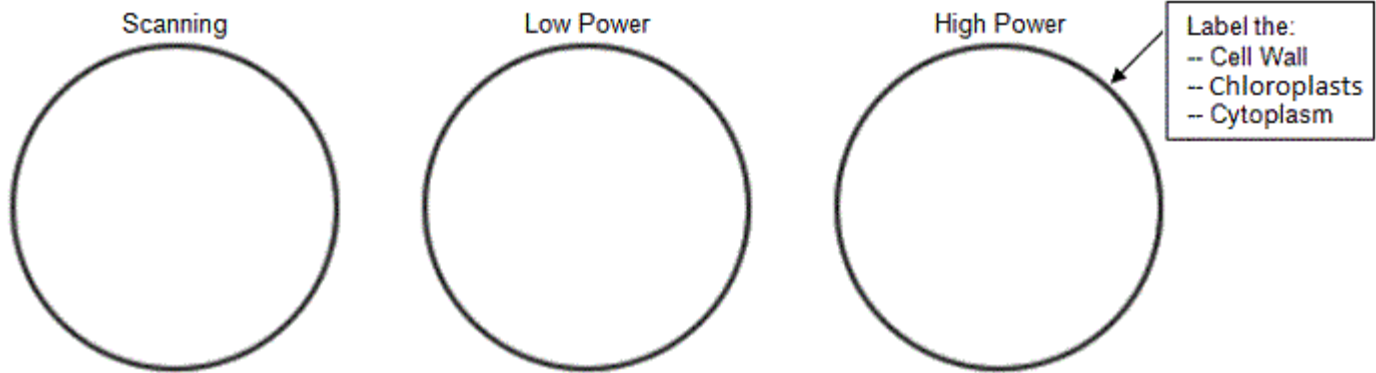
Obtain a prepared slide of onion cells. View under the microscope and sketch at each magnification. Label the cells as they appear under high power.

Scanning Low Power High Power

Label the:
-- Cell Wall
-- Nucleus
-- Cytoplasm

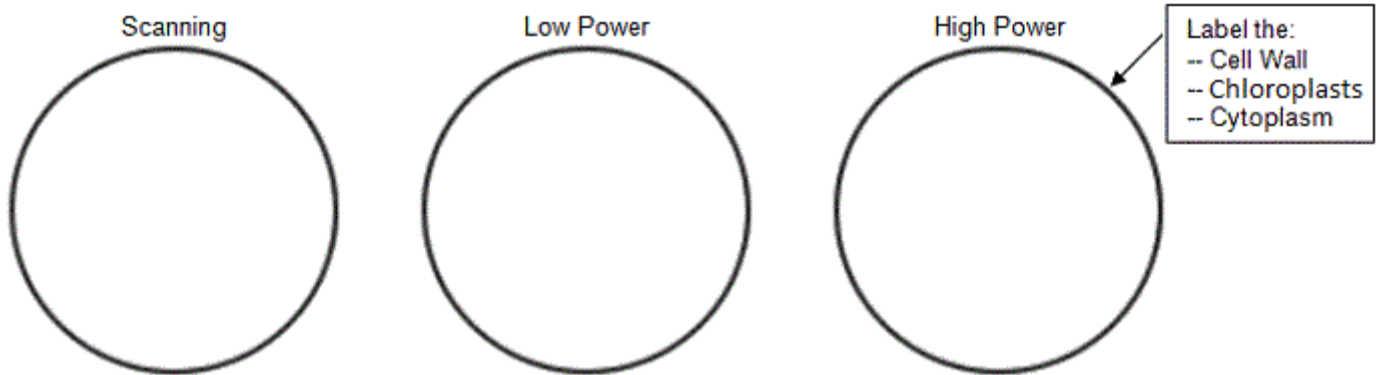
Part B - Paramecium

View a prepared slide of a Paramecium. View under the microscope and sketch at each magnification. Label the cells as they appear under high power.



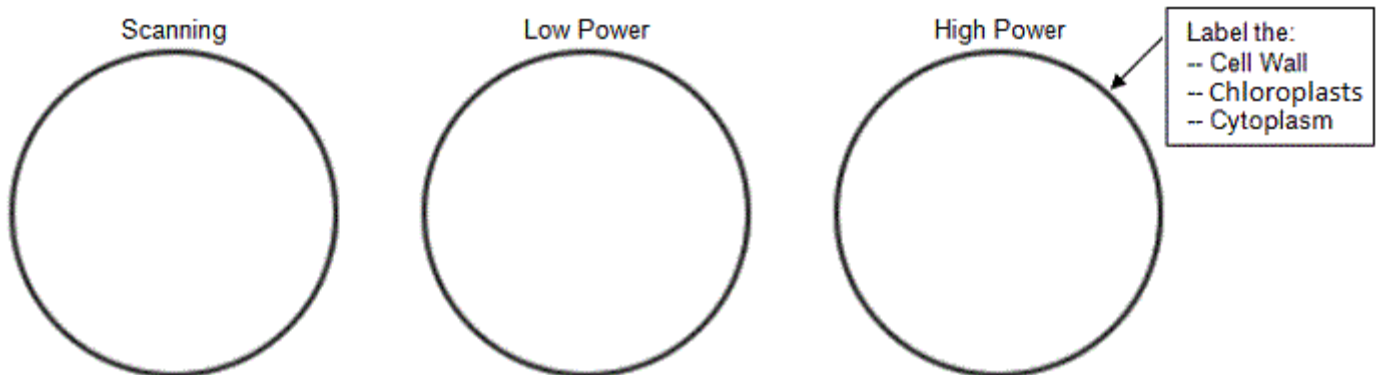
Part C – Wowbug

View a prepared slide of a Wowbug. View under the microscope and sketch at each magnification. Label the cells as they appear under high power.



Part D – Elodea

View a prepared slide of an Elodea. View under the microscope and sketch at each magnification. Label the cells as they appear under high power.



Post Lab Questions

1. Describe the shape and the location of chloroplasts.
2. Why were no chloroplasts found in the onion cells? (hint: think about where you find onions)

3. Fill out the table below and classify the cells you observed into the correct categories:

Hint: you will be selecting two answers for each organism

	Prokaryotic	Eukaryotic	Animal	Plant
Onion				
Paramecium				
Wowbug				
Elodea				