

# Cell Exploration Activities

Name: \_\_\_\_\_ Pd. \_\_\_\_\_

This packet contains different activities that are all about cells. These activities will be done in class but you can also do them at home if you start to fall behind or need more time to work. Make sure you do your best on all activities, the more you try...the more you learn!

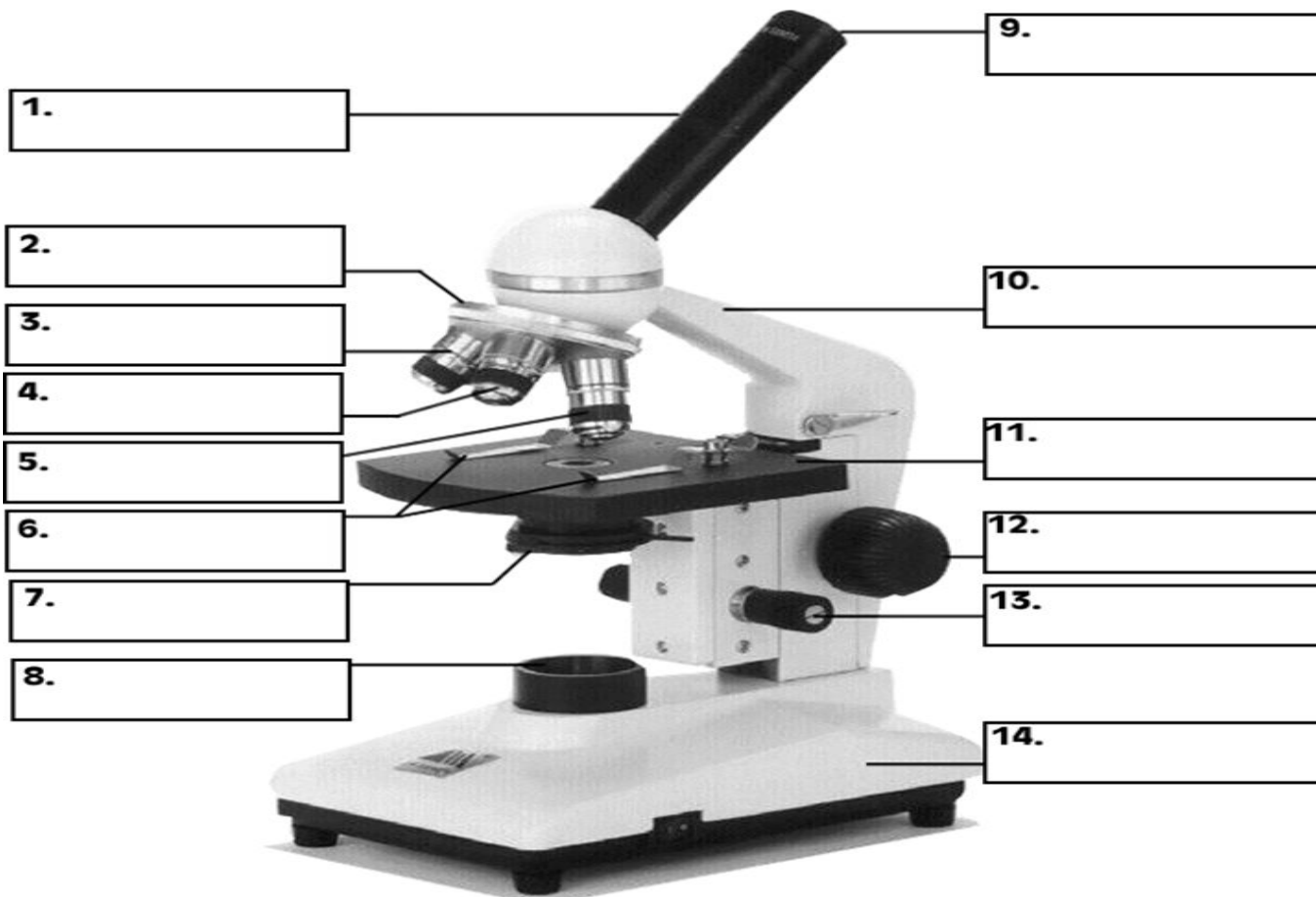
## Activity 1: Microscope Parts

Label the parts of the microscope using these websites to help you:

1. <http://utahscience.oremjr.alpine.k12.ut.us/sciber00/7th/cells/sciber/micrpart.htm>
2. <http://www.microscope.com/education-center/microscopes-101/compound-microscope-parts/#gref>
3. <http://www.amscope.com/microscope-parts-and-functions/>
4. Quizlet: <https://quizlet.com/6423376/the-compound-light-microscope-parts-flash-cards/>

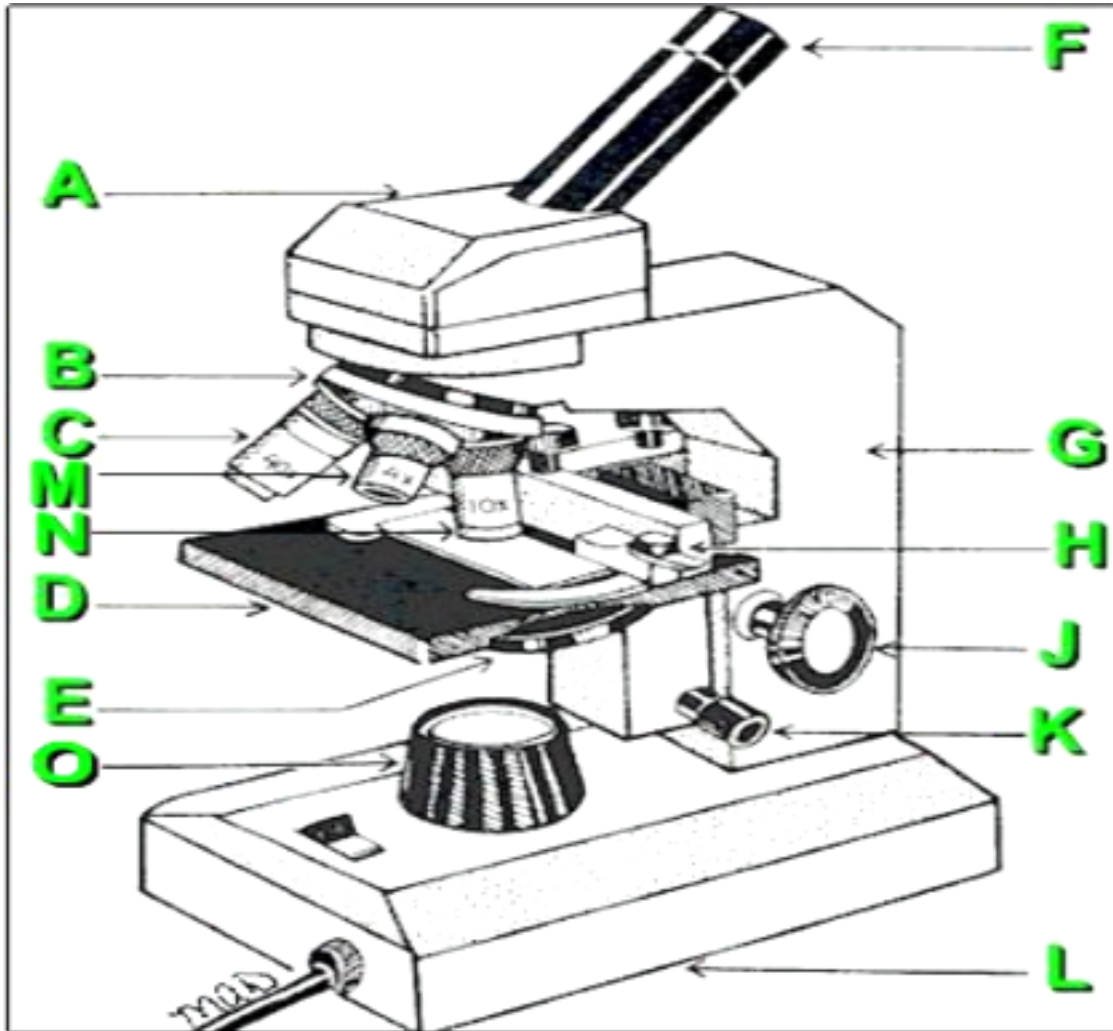
### Word Bank:

Base	Nosepiece	Eyepiece	Arm	Objective lenses (Low Medium High)
Stage	Stageclips	Light	Coarse Adjustment knob	Fine Adjustment knob
Body tube	Aperture	Diaphragm		



Identify correct part by its assigned letter.

The flat place under the objective lens where you place the slide for viewing.



\_\_\_ . Where you look into the microscope

\_\_\_ . The knob that fine tunes the image

\_\_\_ . The lamp or light

\_\_\_ . The objective lens- medium power X10

\_\_\_ . The objective lens- high power X40

\_\_\_ . The objective lens- low power X4

\_\_\_ . This is where you carry the microscope and holds up the upper part

\_\_\_ . This is the first knob used to focus the microscope, and it moves the stage

\_\_\_ . This is where light passes thru the objective lens to the eyepiece

\_\_\_ . This is a disk under the stage that controls the amount of light passing thru aperture.

\_\_\_\_. This is a rotating piece that holds the objective lenses

\_\_\_\_. These are clips that hold the glass slide in place

## Activity 2: How Big Is It?

Part A: Use webpage <http://www.cellsalive.com/howbig.htm>  
Click on **Red START THE ANIMATION** box

Object	Sketch/illustration	Size in Nanometers, micrometers or millimeters
Human Hair		
Dust Mite		
Red Blood Cell		
E. Coli		
Staphylococcus		
Ebola Virus		
Rhinovirus		

Use complete sentences to write a brief summary of this activity. What did you learn, what was interesting, what surprised you, etc.

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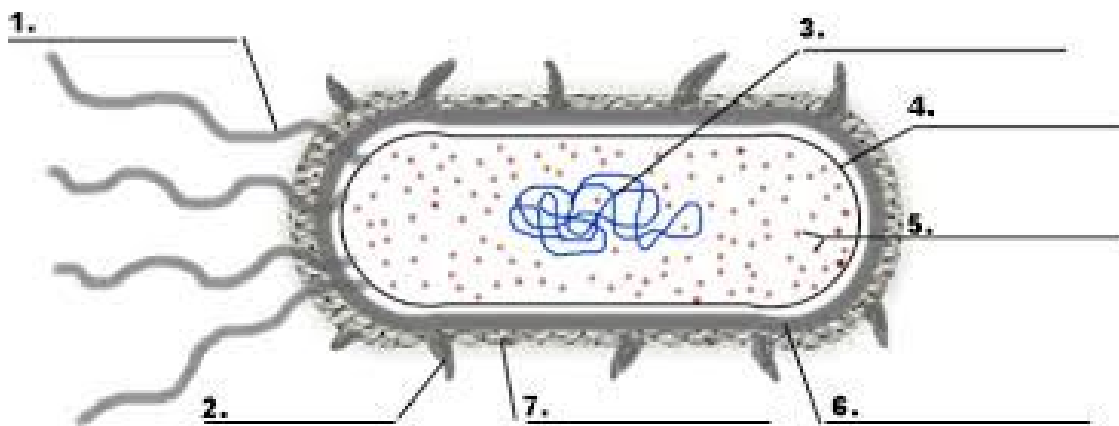


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**Part B:** Use webpage <http://www.cellsalive.com/howbig.htm> click on Bacteria Cell next to red box  
Label the numbered parts of the bacteria cell. This site might help as well  
[http://www.windows2universe.org/earth/Life/cell\\_organelles.html](http://www.windows2universe.org/earth/Life/cell_organelles.html)

Word Bank:

Pili Fimbriae Cell envelope/membrane Flagella Ribosomes Genophore nucleoid Cell wall



### Part C: Animal Cell model

For this model you will need to click on the various parts of the cell to go to a screen that tells you about the parts. Answer in full detail. (Watch these videos to help you Label the parts of the Cell <https://www.youtube.com/watch?v=dngsFI2X3nc> and <https://www.youtube.com/watch?v=URUJD5NEXC8> too)

a. What do mitochondria do?

Sketch the following:

Mitochondria

b. How big are Mitochondria?

c. What does the Golgi Apparatus/body do?

d. What is the difference between the smooth and rough ER?

Ribosome

e. Where is the nucleolus found?

f. What does the nucleolus do?

Nucleus

g. What does the cytoskeleton do?

h. Cytosol goes by what other name?

Cell Membrane

i. What is the function/job of the cytosol?

j. What is the function/job of the lysosome?

#### Part D: Plant cell Model

1. What other type of cell has a cell wall?

Chloroplast

2. What makes the plant cells green?

3. In plant cells, what does the vacuole do?

Vacuole

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**Part E:** For the chart below, check in the box if the cell has that component.

Organelle	Plant	Animal	Bacteria
Vacuole			
chloroplast			
Ribosome			
Mitochondria			
DNA			
Endoplasmic Reticulum			
Cell Wall			
Golgi Apparatus/body			

**Activity 3:** Watch the following Ted Talk and complete the chart below on interesting images and facts he talks about. The Beautiful Nano Details of our World- Gary Greenberg

[http://www.ted.com/talks/gary\\_greenberg\\_the\\_beautiful\\_nano\\_details\\_of\\_our\\_world.html](http://www.ted.com/talks/gary_greenberg_the_beautiful_nano_details_of_our_world.html)

Item/organism	Illustration	Facts/information

## Activity 4 Cell organelles Check

- Go to <https://www.quia.com/jg/65947.html> Use a timer and see you quickly you can get the following game activities correct! Do each 2 times and try to improve your score!

Flashcards time : \_\_\_\_\_ and \_\_\_\_\_

Matching time: \_\_\_\_\_ and \_\_\_\_\_

Concentration time: \_\_\_\_\_ and \_\_\_\_\_

## Activity 5: Cell Quizolas

- Go to [http://www.biology4kids.com/extras/quiz\\_cellorgan/index.html](http://www.biology4kids.com/extras/quiz_cellorgan/index.html)
  - Record your quiz score here: \_\_\_\_\_
- Go to [http://www.zerobio.com/target\\_practice\\_quiz/target\\_practice\\_quiz\\_cells.htm](http://www.zerobio.com/target_practice_quiz/target_practice_quiz_cells.htm)
  - Record your quiz score here: \_\_\_\_\_
- Go to [https://www.biologycorner.com/quiz/qz\\_cell.html](https://www.biologycorner.com/quiz/qz_cell.html)
  - Record your quiz score here: \_\_\_\_\_
- Go to [http://www.propofs.com/quiz-school/story.php?title=3rd-block-group-2\\_1](http://www.propofs.com/quiz-school/story.php?title=3rd-block-group-2_1)
  - Record you quiz score here: \_\_\_\_\_

## Activity 6: A typical animal cell

- Go to <http://www.funtrivia.com/playquiz/quiz14606510ba900.html>
  - Record your quiz score here: \_\_\_\_\_
- Go to [http://www.sheppardsoftware.com/health/anatomy/cell/cell\\_game.htm](http://www.sheppardsoftware.com/health/anatomy/cell/cell_game.htm)
  - Play the cell game to practice your cell anatomy

## Activity 7: Cell Foldable

Create an 8 part foldable with the following pictures on front side and function on the inside

- Nucleus and nucleolus
- cell wall and cell membrane
- golgi body/apparatus
- lysosomes
- mitochondria
- rough and smooth ER
- ribosomes
- vacuole

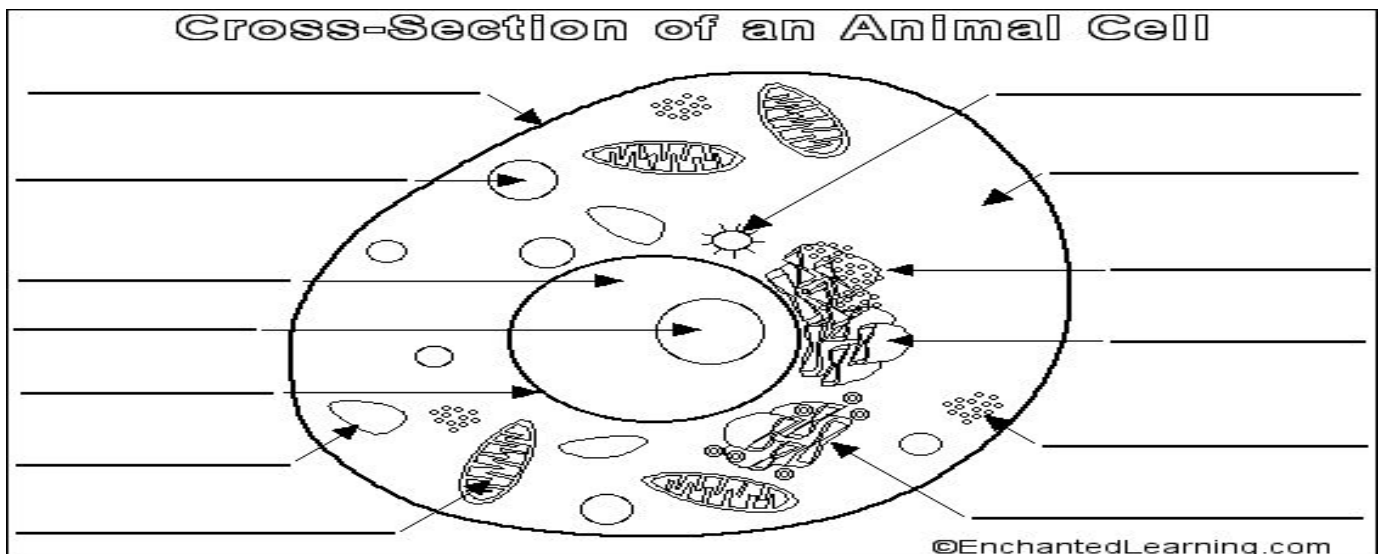
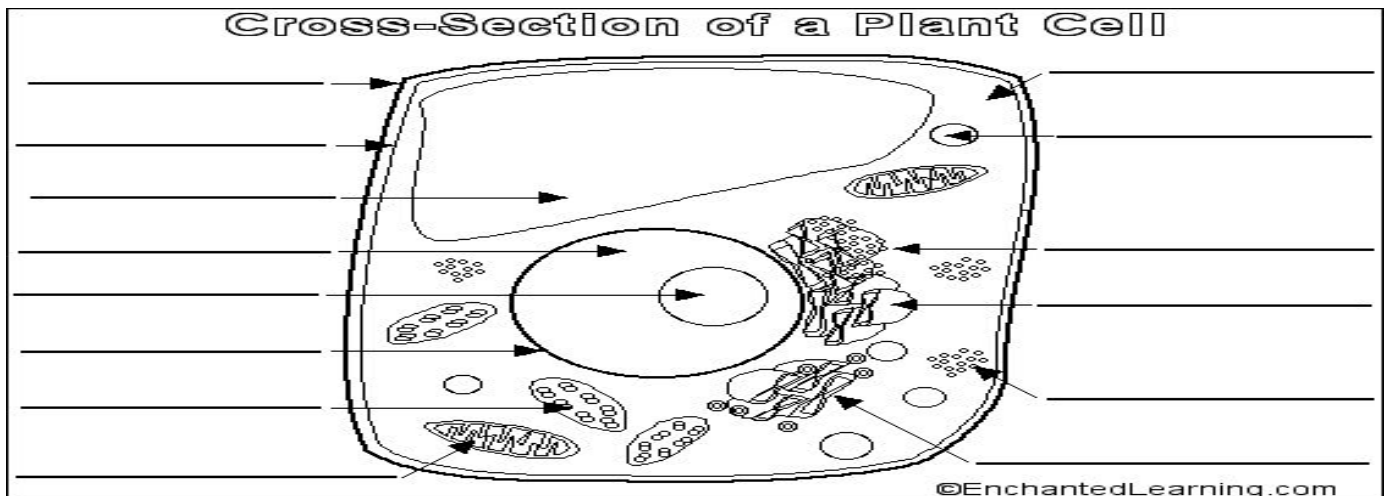
## Activity 8: Plant and Animal Cell organelles Quiz

Go to: <http://www.lahc.cc.ca.us/biology/bio3/mchernoff/quiz.html> Fill in your answers on the diagrams of the plant and animal cell organelles. When you have finished, take the 10 point T/F quiz. Click check answers at bottom and fill in the correct answers with a colored pencil/pen.

Watch these videos to help you Label the parts of the Cell

1. <https://www.youtube.com/watch?v=dngsFI2X3nc>

2. [https://www.youtube.com/watch?annotation\\_id=annotation\\_219283&feature=iv&src\\_vid=LP7xAr2FDFU&v=fKEaTt9heNM](https://www.youtube.com/watch?annotation_id=annotation_219283&feature=iv&src_vid=LP7xAr2FDFU&v=fKEaTt9heNM)





1. true | false The vacuole produces enzymes.

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2. true | false The Golgi body processes, sorts, and packages proteins and lipids.

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3. true | false Ribosomes produce proteins.

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true | false The rough endoplasmic reticulum is responsible for calcium storage and release.

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4. true | false The nucleus is commonly called the control center of the cell.

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5. true | false The cell wall can be found in animal cells.

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6. true | false The nucleus is usually spherical and is the largest structure in the cell.

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7. true | false The plasma membrane or cell membrane controls what moves into and out of the cell.

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8. true | false The chloroplast is where photosynthesis occurs.

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9. true | false The mitochondria does not produce ATP.

## Activity 9: The Cell as a School

Use these sites to help you:

1. <https://www.youtube.com/watch?v=rABKB5aS2Zg>
2. <https://www.youtube.com/watch?v=-zafJKbMPA8>
3. <https://quizlet.com/410483/cell-organelles-and-their-functions-flash-cards/>
4. <http://utahscience.oremjr.alpine.k12.ut.us/sciber00/7th/cells/sciber/orgtable.htm>

A cell is like our school. Each part of the cell (and school) has duties/responsibilities that must be done and certain organelles (people or places) to do them. Identify the function/job of the following parts of the cell. Then, identify which person or place in the school that does the same job. The first one is done for you as an example.

Organelle	Function (job)	Part of school that has a similar function (job)
Cell membrane		
Cytoplasm		
Golgi Body		
Lysosome		
Mitochondria		
Nucleus		
Nucleolus		
Rough ER		
Smooth ER		
Ribosome		
Vacuole		
Chloroplast (plant only)		
Central Vacuole (plant only)		
Cell wall		

## Activity 10: Cell structure

Watch these videos:

1. <http://study.com/academy/lesson/prokaryotes-eukaryotes-definition-examples.html>
2. <https://www.youtube.com/watch?v=RQ-SMCmWB1s>
3. <http://www.bioexplorer.net/difference-between-prokaryotic-and-eukaryotic-cells.html/>

In this activity you will learn the different types of cells and get to create your very own.

Go to

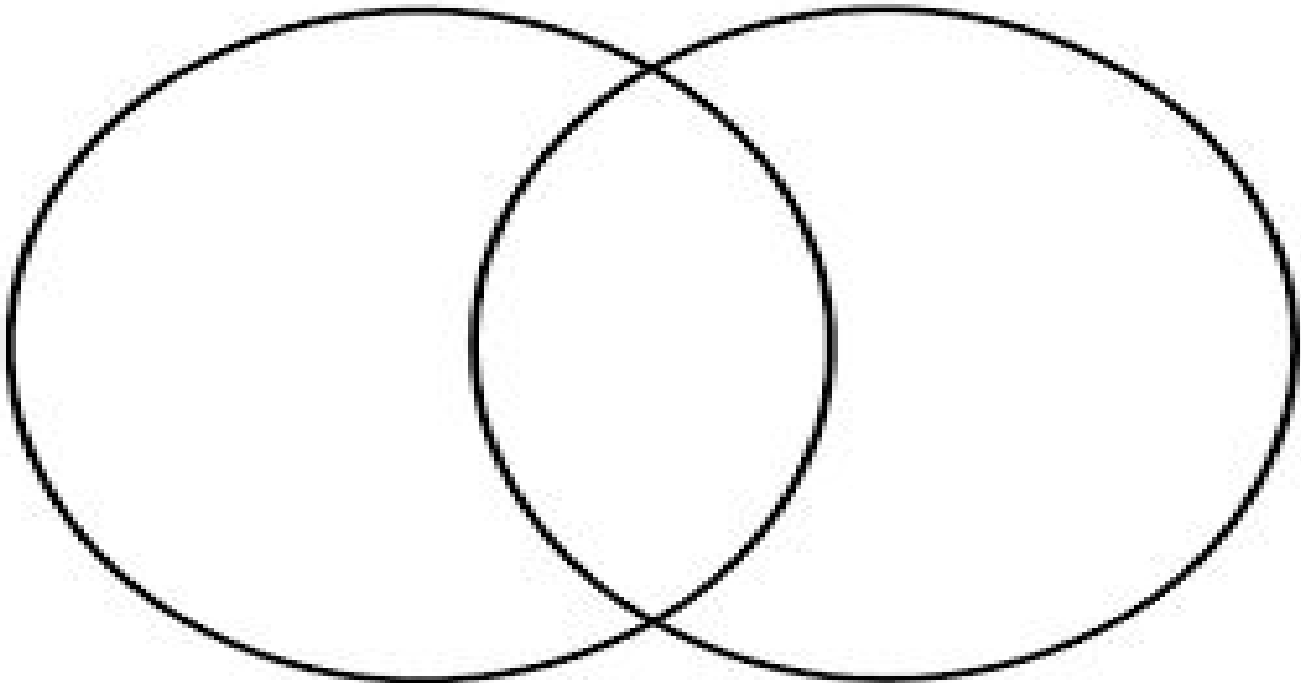
[http://www.wiley.com/legacy/college/boyer/0470003790/animations/cell\\_structure/cell\\_structure.htm](http://www.wiley.com/legacy/college/boyer/0470003790/animations/cell_structure/cell_structure.htm)

Click on INTRO and then continue on by clicking the arrows. Fill in the information in the organizer below.

**Prokaryote**

**both**

**Eukaryote**



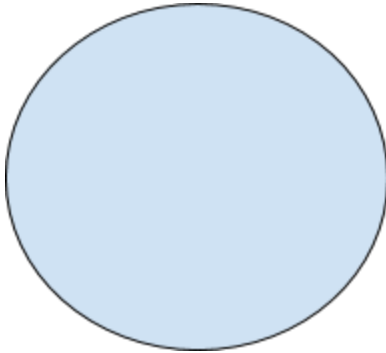
In the following matrix, put a check in the box to show if the organelle is present in the prokaryotic cells, eukaryotic cells or both. State in one sentence what the function of the organelle is.

<b>Organelle</b>	<b>Prokaryote</b>	<b>Eukaryote</b>	<b>Function</b>
Cell membrane			
Cell wall			
Nucleus			
Mitochondria			
Chloroplast			
ER (smooth)			
Golgi Body/ apparatus			
Lysosomes			
Ribosomes			
ER rough			
Vacuole			

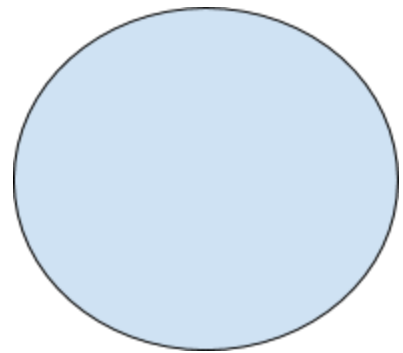
**Activity 13 Pro Scopes**

Use the ProScope to look at 4 different items and 2 different microscope items you have brought in or around the classroom. Identify them as plant, animal, or non-living. Illustrate them with detail under the 100X lens.

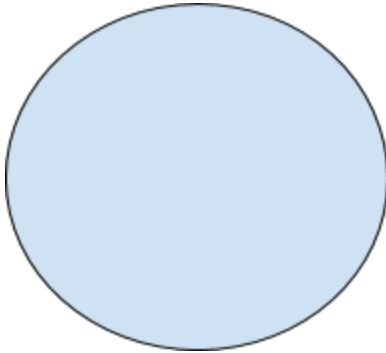
Object 1: \_\_\_\_\_  
Plant Animal non-living



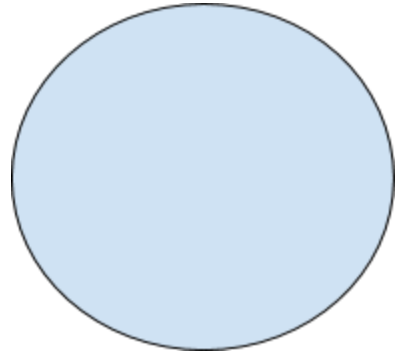
Object 2: \_\_\_\_\_  
Plant Animal non-living



Object 3: \_\_\_\_\_  
Plant Animal non-living

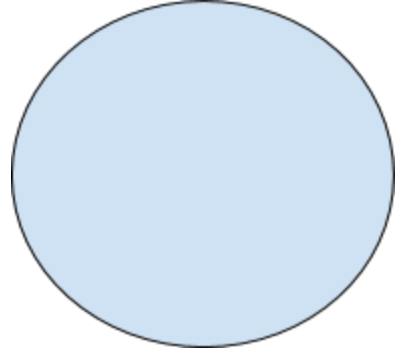
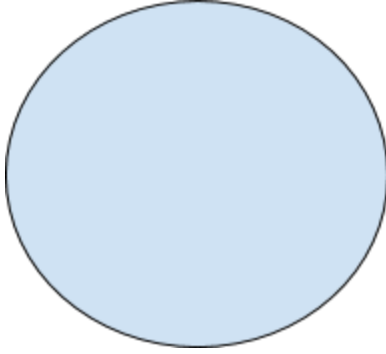


Object 4: \_\_\_\_\_  
Plant Animal non-living



Object 1: \_\_\_\_\_  
Plant Animal non-living

Object 2: \_\_\_\_\_  
Plant Animal non-living



### **Activity 12: What I've Learned**

Write in complete and detailed sentences about what you have learned by doing these activities in this packet.

Let me tell you about some of the important things I've learned about cells. First, I'll start with....

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Next, I'll tell you about...

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Something else I learned was....

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Lastly, I now really know about and understand...

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**Extra credit only if you are finish with all other activities in this packet.**

### **Extra Credit: The Mixed up Cells**

Go to <http://www.beaconlearningcenter.com/WebLessons/MixedUpCells/default.htm>

Follow the directions and record the data in the space below.