

CELL EXPLORATION ACTIVITIES







FIRST THIS IMPORTANT MESSAGE FROM YOUR TEACHER:

This packet contains different activities that are all about cells. The activities may be done in any order unless I say otherwise, **EXCEPT FOR # 12—DO THAT ONE LAST!** They will pretty much follow what we do as a class so you might want to do them in order. These activities will be done in class but you can also do them at home. They are written so that you can do them **INDEPENDENTLY** and **WITHOUT** me. If you do get stuck, go on to another activity or ask a classmate for help until you can meet with me. Make sure you do your best since these will count as a **TEST GRADE**. Some of these activities you will do by yourself or with others (see key below). You must have a **NEW PARTNER** each time and **BEWARE**, if I don't get a sense that you are doing the work (not watching others do it), talking about the work (not your social life) or making progress on the work, (not just havin' a good time) you'll be asked to do it by yourself or after school under my supervision. Remember, choices come with consequences.

Use the checklist below to make sure you keep track of completed activities.

DONE	ACTIVITY	DONE	ACTIVITY
	#1. HOW BIG IS IT?		#7. THE MIXED UP CELL
	#2. SEEING CELLS FIRST		#8. CELL FOLDABLE
	#3. CELLS ORGANELLES CHECK		#9. THE CELL AS A SCHOOL
	#4. CELL QUIZOLAS		#10. CELL INSPECTOR
	#5. A TYPICAL ANIMAL CELL		#11. CELL STRUCTURE
	#6. PLANT & ANIMAL CELLS QUIZ		#12. WHAT I'VE LEARNED

Activity Key:

 <p>Exploration</p>	<p>These activities require a computer and possibly my web page</p>		<p>These activities require some writing and reflection.</p>
 <p>Hands-on</p>	<p>These activities require you to follow procedures and use science materials.</p>	 <p>Product</p>	<p>These activities require you to make something to demonstrate your knowledge.</p>
 <p>Pair Activity</p>	<p>Requires a partner to work with.</p>	 <p>Learning from Text</p>	<p>Requires a textbook or print materials.</p>

ACTIVITY 1: HOW BIG IS IT?

My Partner(s): _____

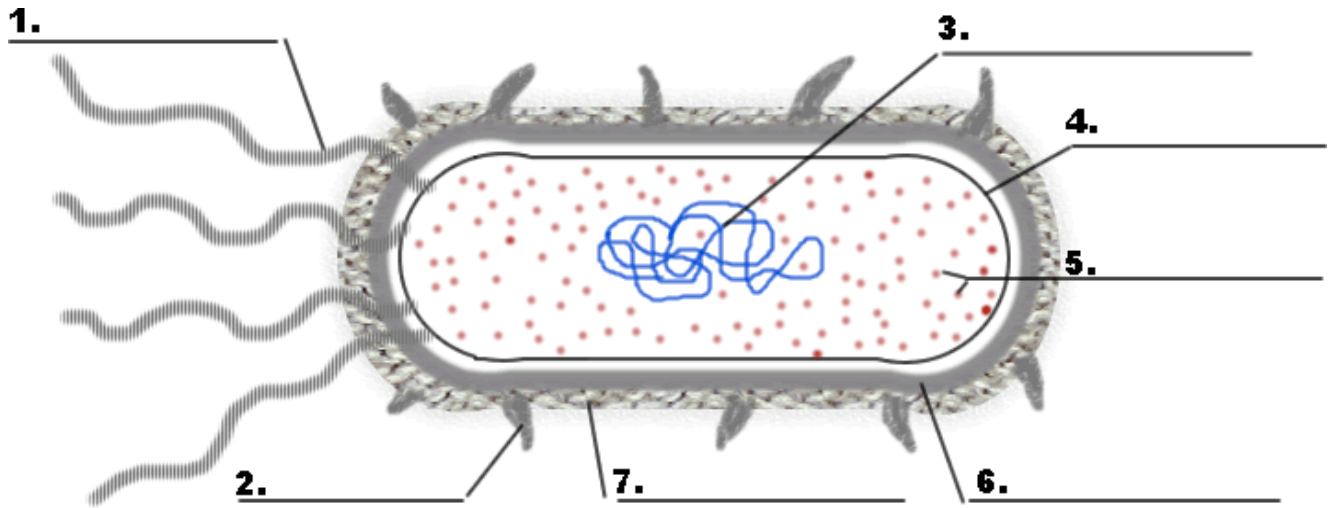


1. Explore the "How Big is a...?" web page at <http://www.cellsalive.com/howbig.htm> (or click the link on my web page). Here you will look at objects found on the head of a pin. Your job is to rank them in order of size on the chart below and estimate the length of each (in nanometers, micrometers, or millimeters). The line in the bottom right corner of the screen is used to help you estimate. Sketch each of the objects.

Object	Sketch	Size in nanometers, micrometers or millimeters
Human hair		
Dust Mite		
Red Blood Cells		
E. coli		
Staphylococcus		
Ebola virus		
Rhinovirus		

Use **COMPLETE SENTENCES** to write a brief summary of this activity, what you did and what you learned.

Part B: Bacterial Cell Model - (you will need to return to the "Cell Biology" link to access this page, or hit your back button). Label the numbered parts on each line.



Part C; Animal Cell Model - (you will need to return to the "Cell Biology" link to access this page, or hit your back button) - 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. Answers to the following questions are found there.

1. What do mitochondria do?

Sketch each of the following.

2. How big are mitochondria?

3. What does the Golgi Apparatus do?

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

5. Where is the nucleolus found?

6. What does the nucleolus do?

Mitochondria
Ribosome

7. What does the cytoskeleton do?

8. Cytosol goes by what other name?

9. What is the function of the cytosol?

10. What is the function of the lysosome?

Nucleus
Cell Membrane

Part D: Plant Cell Model - (you will need to return to the "Cell Biology" link to access this page, or hit your back button)

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

Sketch the following

2. What makes the plant cells green?

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

Chloroplast
Vacuole

Part E: Overview

For the chart below, place a 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			

ACTIVITY 2: SEEING CELLS FIRST

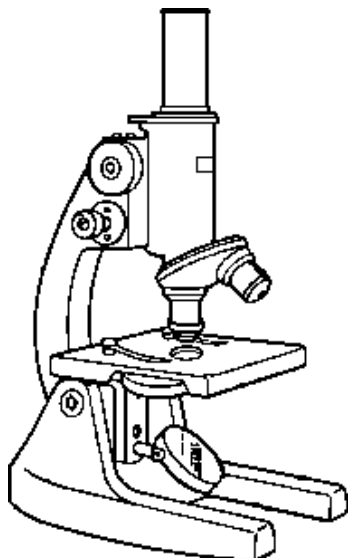


Directions:

1. Go to <http://www.kbears.com/sciences/microscope.html> (or my web page)
2. Click on any five organisms and use the information to complete the chart below.

Organism	Sketch	Facts/Information

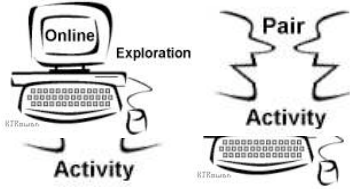
3. Click on **“What is a Microscope”** and use the info to label the diagram below by drawing arrows from the terms to their location on the microscope (USE A RULER). Next, write a fact or some info about each one.



Base-
Eyepiece -
Coarse focus knob
Arm-
Fine focus knob-
Aperture-
Light-
Stage-
Diaphragm-
Objective lens-

ACTIVITY 3: CELL ORGANELLES CHECK

My Partner(s): _____



1. Go to <http://www.quia.com/jg/65947.html> (or my web page)
2. Play the Flashcard and Matching games Time how long it takes you (you can do it more than once) .
3. Enter you scores below.

My Best Matching Time: _____

My Best Flashcard Time: _____

4. Next, play the Concentration game and put your best score here: _____

ACTIVITY 4: CELL QUIZOLAS



1. Go to http://www.biology4kids.com/extras/quiz_cellorgan/index.html (or my web page)
Take the quiz and put your score here: _____
2. Go to http://www.zerobio.com/target_practice_quiz/target_practice_quiz_cells.htm (or my web page)
Take the quiz and put your score here: _____
3. Go to http://www.proprofs.com/quiz-school/quizshow.php?title=3rd-block-group-2_1&quesnum=1 (or my web page)

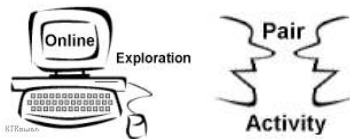
Take the quiz and put your score here: _____

4. Go to <http://www.schools.utah.gov/curr/science/sciber00/7th/cells/Quiz/index.htm> (or my web page)

Take the quiz and put your score here: _____

ACTIVITY 5: A TYPICAL ANIMAL CELL

My Partner(s): _____



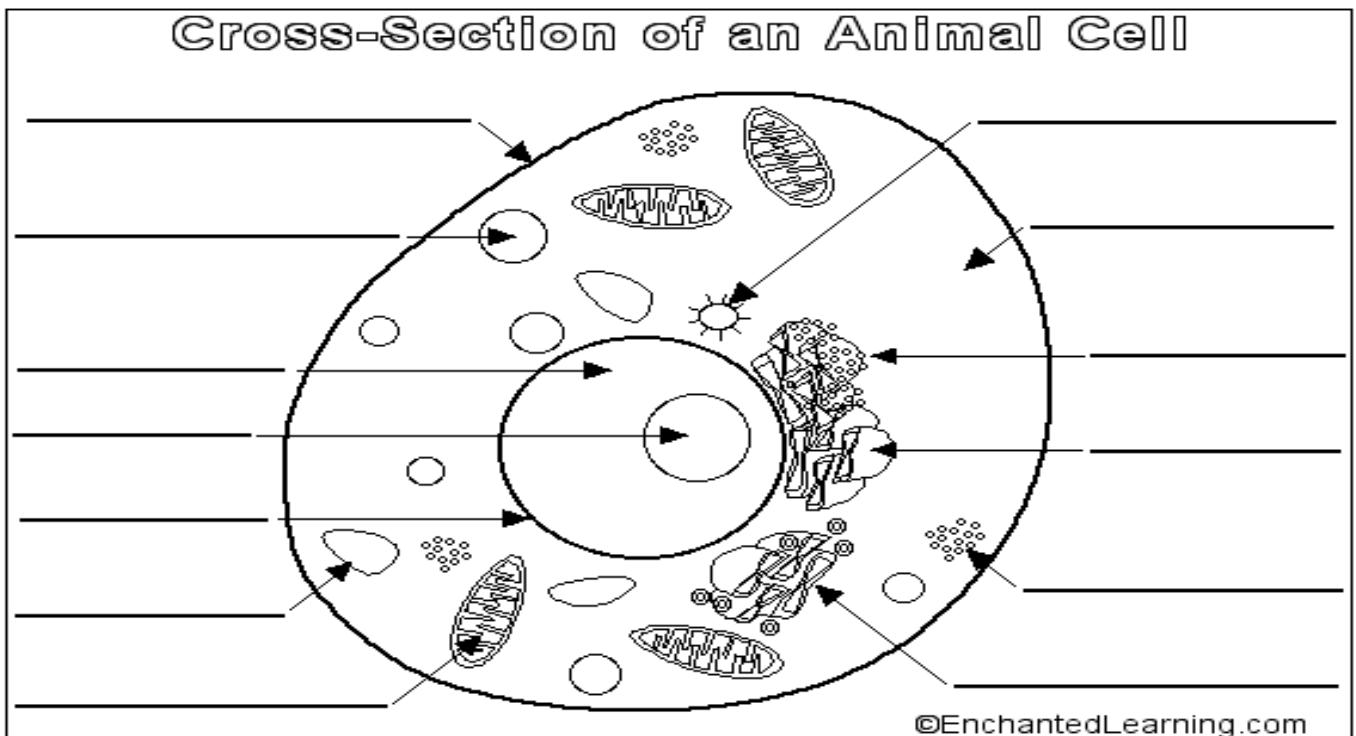
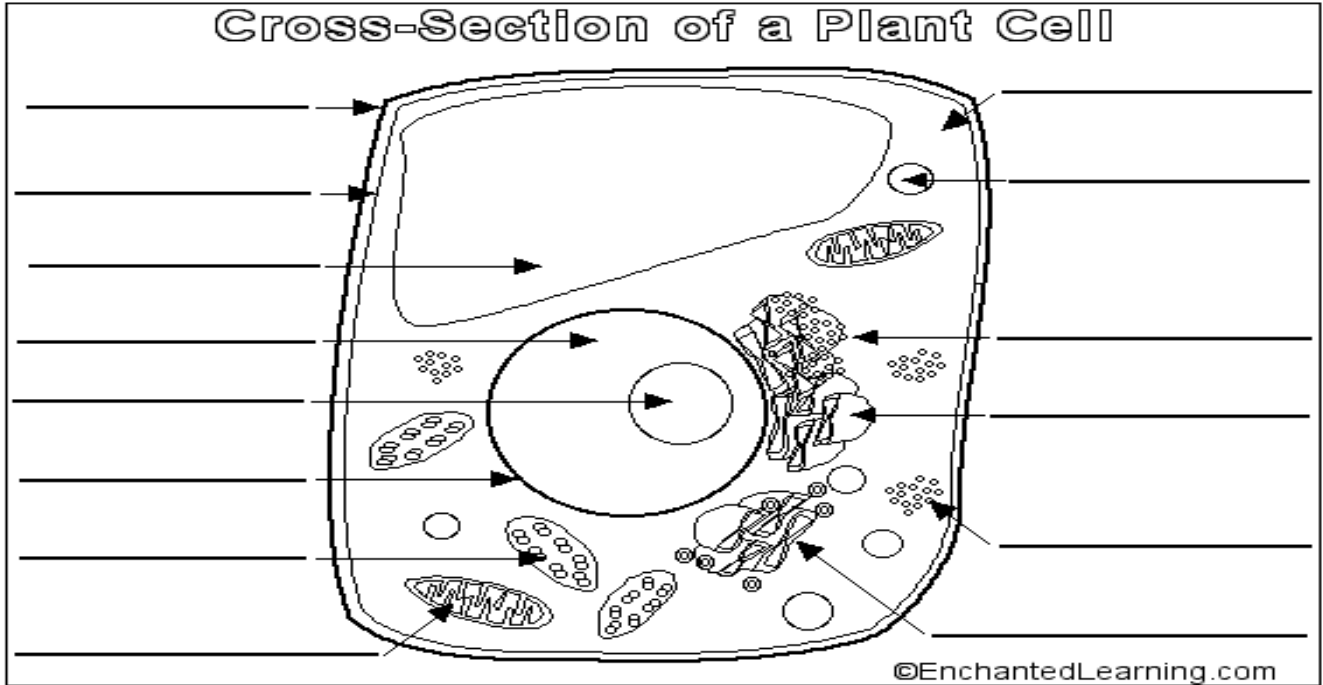
1. Go to <http://www.wisc-online.com/Objects/ViewObject.aspx?ID=AP11403> (or my web page)
2. Follow the directions and see how many organelles you can find.
3. Go to <http://www.funtrivia.com/playquiz/quiz14606510ba900.html> (or my web page)
4. Take the quiz and put your score here: _____ (each one is worth 10 points)

ACTIVITY 6: PLANT AND ANIMAL CELL ORGANELLES QUIZ

My Partner(s): _____



1. Go to <http://www.lahc.cc.ca.us/biology/bio3/mchernoff/quiz.html> (or my web page)
2. Fill in your answers on the diagrams below and then compare them to the correct answer page.



Check the questions you got correct: 3 4 5 6 7 8 9 10 11 12

ACTIVITY 7: THE MIXED UP CELLS

My Partner(s): _____



1. Go to <http://www.beaconlearningcenter.com/WebLessons/MixedUpCells/default.htm> (or my web page)
2. Follow the directions and record the data in the space below.

ACTIVITY 8: CELL FOLDABLE



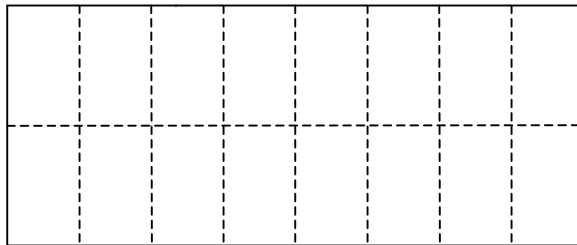
Goal: To create a pictorial representation of the parts of cells, with the name of the major organelles, and a description of their functions.

Materials:

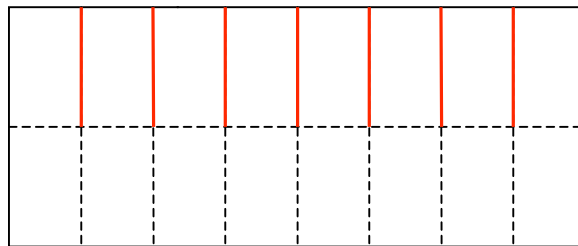
- 12 X 18 White "poster" paper
- Markers or colored pencils
- Scissors
- Textbook

Procedures:

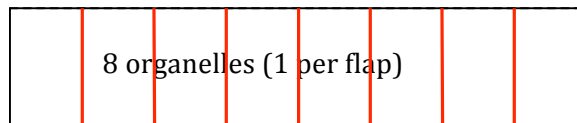
STEP 1: Fold poster paper in a way so that it is divided into 16 sections



STEP 2: Cut the folds **on one side of the paper only**



STEP 3: Draw each of the cell parts on the front of the flap as it is closed down.



STEP 4: On the back of the flap write the function of the organelle.

Example: Nucleus – This is the part of the cell that is the control center and directs all activity.

STEP 5: Put your name on the last flap on the front.

ACTIVITY 9: THE CELL AS A SCHOOL



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

Organelle	Function	Part of our school that has a similar function
Cell Membrane	Controls what goes in and out of the cell	Front Office
Cytoplasm		
Golgi Body		
Lysosome		
Mitochondria		
Nucleus		
Nucleolus		
Ribosome		
Rough ER		
Smooth ER		
Vacuole		
Cell Wall (Plant only)		
Chloroplast (Plant only)		
Central Vacuole (Plant only)		

ACTIVITY 10: CELL INSPECTOR

My Partner(s): _____



In this activity, you will identify cell parts and microscope. Follow the directions below to receive credit for this activity. Make sure you answer all of the questions and fill in all blanks to receive credit. Partial credit will not be given.

Directions: Section 1

1. Go to the Cell Inspector website: <http://www.harcourtschool.com/activity/cell/cell.html> (or my web page).
2. Use the arrow keys provided to read the instructions in the box on the upper right. Click on the help key to get further instructions. Follow the instructions. Once you get 100 percent on all four cells, go on to step 3.
3. Record your correct answers for each cell in the space provided on this worksheet. (Make sure you have the right answers for the right cell. Be sure to answer the check questions. Now go on to Section 2.

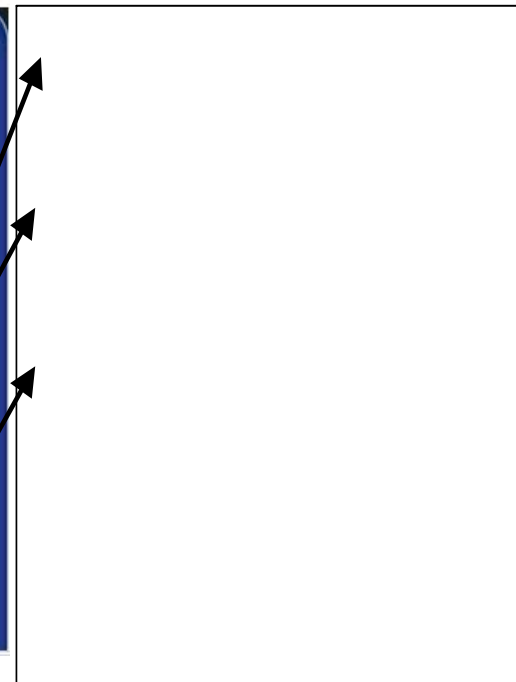
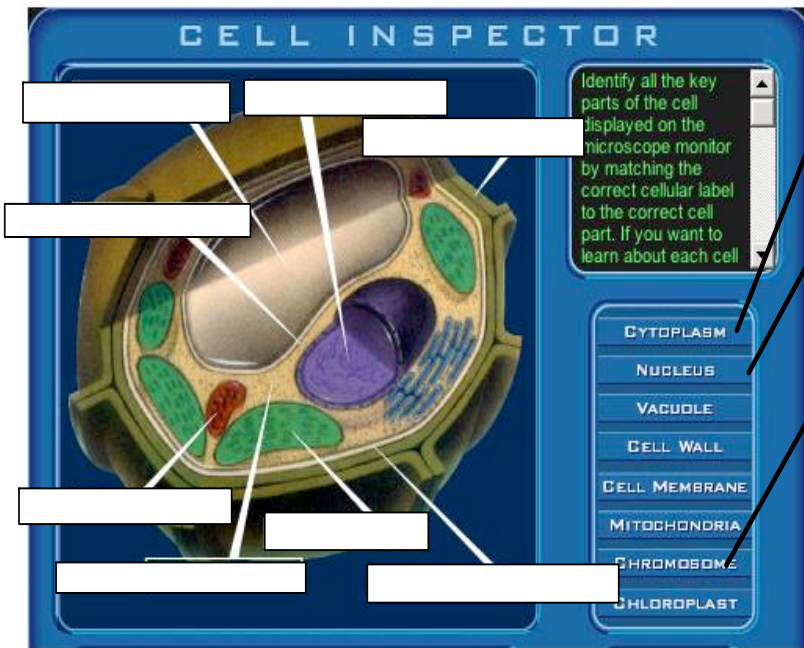
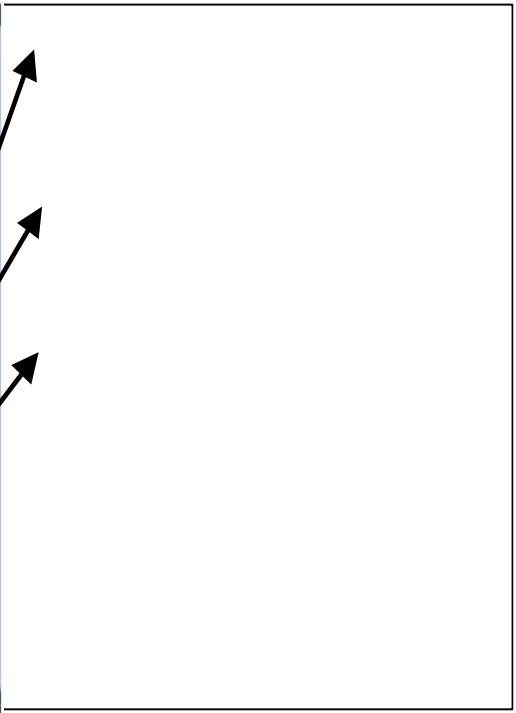
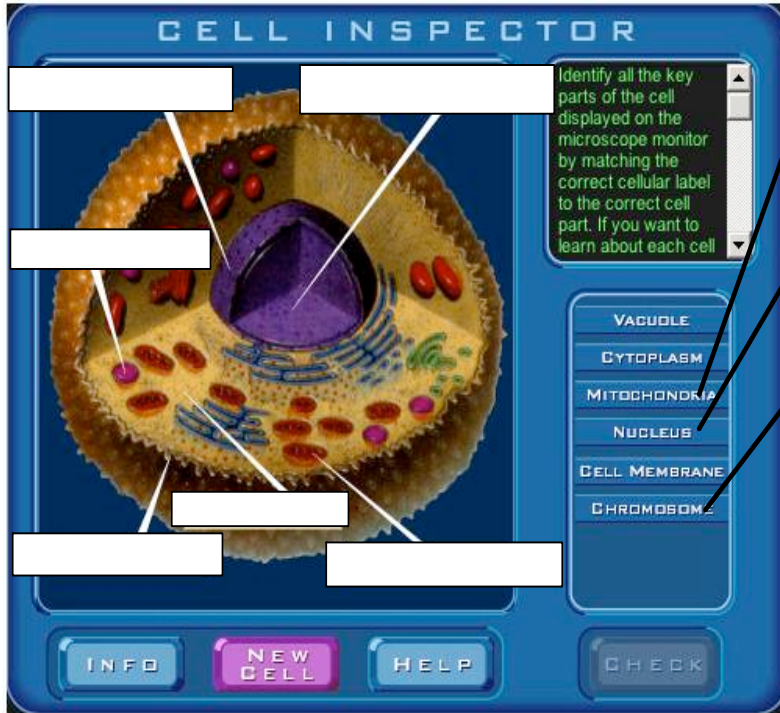
Function: _____

Function: _____

Function: _____

Is this a plant cell or animal cell?

Check Question: What is the name of the cell that appeared when you got all of the questions right?

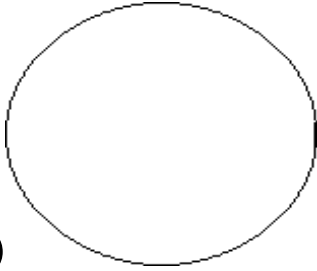


Section 3- Microscope Views

To prepare you for the next lab, in this section you will be looking at slides of plant and animal cells. Follow the directions below to complete this internet activity. (Make sure you have filled in all of the blanks in the previous sections before you start this section.)

Directions:

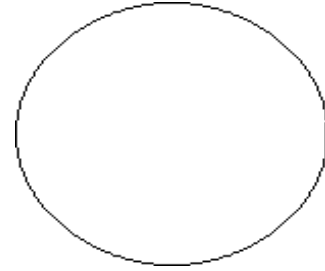
1. Go to: <http://www.usoe.k12.ut.us/curr/science/sciber00/7th/cells/sciber/cellphot.htm>
2. Draw the cells you see the microscope field in the circles below. The numbers on this worksheet match the pictures.
3. Label on the first line whether it is a Plant or an Animal cells.
(Hint: Remember that plant cells have some things that animal cells don't.)
4. Explain what major characteristic(s) causes you think that they are a plant or an animal cell.



1)

Plant or Animal? _____

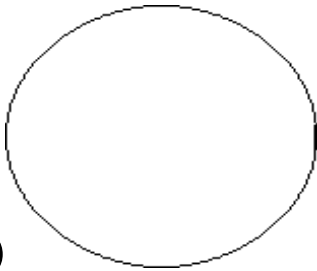
Explain: _____



2)

Plant or Animal? _____

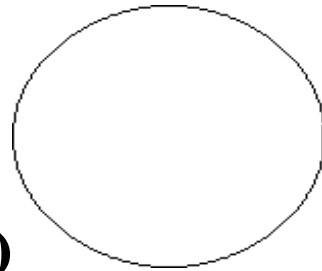
Explain: _____



3)

Plant or Animal? _____

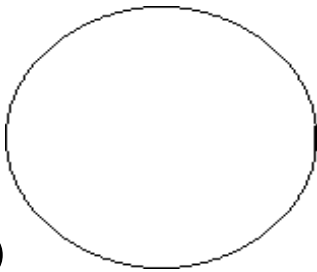
Explain: _____



4)

Plant or Animal? _____

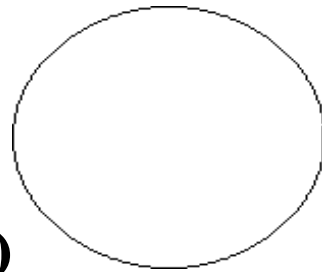
Explain: _____



5)

Plant or Animal? _____

Explain: _____



6)

Plant or Animal? _____

Explain: _____

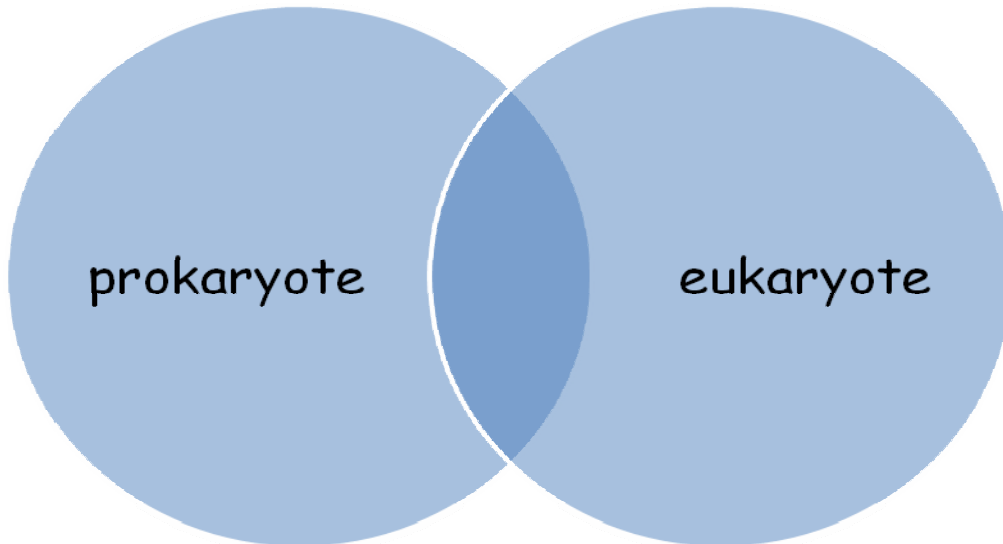
ACTIVITY 11: CELL STRUCTURE



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

Directions:

1. Go to http://www.wiley.com/legacy/college/boyer/0470003790/animations/cell_structure/cell_structure.htm (or my web page).
2. Click on INTRO and then continue on by clicking the arrows.
3. Fill in the information in the organizer below.



2. In the following matrix, put a check in the box to show the organelle is present in prokaryotic or eukaryotic cells, or both, and state in 1 sentence what the function of the organelle is.

Organelle	Prokaryote	Eukaryote	Function
Cell membrane			
Cell wall			
Nucleus			
Mitochondria			
Chloroplast			
Endoplasmic reticulum (smooth)			
Golgi apparatus			
Lysosomes			
Ribosomes			
Endoplasmic reticulum (rough)			
Vacuole			

ACTIVITY 12: WHAT I'VE LEARNED

(DO THIS LAST!)



Directions: On the lines below, write about what you've learned by doing the activities in this packet. Be as specific as possible and use COMPLETE SENTENCES.

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

Next, I'll tell you about...

Something else I learned was...

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