

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

## Evidence 2: Cell Structure & Function

## Option 3: On line Diagram

Go to [www.biologybynapier.com](http://www.biologybynapier.com) Cell Unit and scroll down to the button for this lab. OR log on to <http://www.ibiblio.org/virtualcell/> then click on "The Virtual Cell Tour" Bus

1. **Centrioles** are only found in \_\_\_\_\_ cells. They function in cell \_\_\_\_\_. They have \_\_\_\_\_ groups of \_\_\_\_\_ arrangement of the protein fibers. Draw a picture of a centriole in the box.

2. **Lysosomes** are called \_\_\_\_\_ sacks. They are produced by the \_\_\_\_\_ body. They consist of a single membrane surrounding powerful \_\_\_\_\_ enzymes. Those lumpy brown structures are digestive \_\_\_\_\_. They help protect you by \_\_\_\_\_ the bacteria that your white blood cells engulf. \_\_\_\_\_ act as a clean up crew for the cell. Zoom in and draw what you see.

3. **Chloroplasts** are the site of \_\_\_\_\_. They consists of a \_\_\_\_\_ membrane. The stacks of disk like structures are called the \_\_\_\_\_. The membranes connecting them are the \_\_\_\_\_ membranes. Zoom in and draw a picture.

4. **Mitochondrion** is the \_\_\_\_\_ of the cell. It is the site of \_\_\_\_\_. It has a \_\_\_\_\_ membrane. The inner membrane is where most \_\_\_\_\_ respiration occurs. The inner membranes is \_\_\_\_\_ with a very large surface area. These ruffles are called \_\_\_\_\_. Mitochondria have their own \_\_\_\_\_ and manufacture some of their own \_\_\_\_\_. Draw a picture of the mitochondrion with its membrane cut.

5. **Endoplasmic Reticulum (ER)** is a series of double membranes that \_\_\_\_\_ back and forth between the cell membrane and the \_\_\_\_\_. These membranes fill the \_\_\_\_\_ but you cannot see them because they are very \_\_\_\_\_. The rough E.R. has \_\_\_\_\_ attached to it. This gives it its texture. These ribosomes manufacture \_\_\_\_\_ for the cell. The ribosomes are the \_\_\_\_\_ which manufacture proteins. Draw the rough ER with a ribosome.

6. **Smooth E.R.** \_\_\_\_\_ ribosomes. It acts as a \_\_\_\_\_ throughout the cytoplasm. It runs from the cell membrane to the nuclear \_\_\_\_\_ and throughout the rest of the cell. It also produces \_\_\_\_\_ for the cell. Draw a picture of the smooth ER.

7. **Cell Membrane** performs a number of critical functions for the \_\_\_\_\_. It regulates all that \_\_\_\_\_ and leaves the cell; in multicellular organisms it allows \_\_\_\_\_ recognition. Draw and shade the cell membrane.

Centriole

Lysosomes

Chloroplasts

Mitochondrion

Endoplasmic Reticulum (ER)

Smooth ER

Cell Membrane

8. **Nucleus** is called the \_\_\_\_\_ of the cell. It is a large \_\_\_\_\_ spot in eukaryotic cells. It \_\_\_\_\_ all cell activity. The nuclear membrane has many \_\_\_\_\_. The thick rosy strands are the \_\_\_\_\_. The large solid spot is the \_\_\_\_\_. The nucleolus is a spot of \_\_\_\_\_ chromatin. It manufactures \_\_\_\_\_. The chromatin is \_\_\_\_\_ in its active form. It is a \_\_\_\_\_ of DNA and histone proteins. It stores the information needed for the manufacture of \_\_\_\_\_. Draw a picture of the nucleus and its nucleolus.

**Nucleus &  
Nucleolus**

9. **Golgi Body** is responsible for packaging \_\_\_\_\_ for the cell. Once the proteins are produced by the \_\_\_\_\_ E.R., they pass into the \_\_\_\_\_ like cisternae that are the main part of the Golgi body. These proteins are then squeezed off into the little \_\_\_\_\_ which drift off into the cytoplasm. Draw a picture of the Golgi Body as it is squeezing off the proteins.

**Golgi Body**

**The "Virtual Cell" allowed you to get a close-up view of several organelles in 3-D! You were able to choose certain organelles within the cell and manipulate them by zooming in on the organelle, rotating the image, and dissecting several organelles to view their contents. The intent of this activity is to provide you with a better feeling of the appearance (structure), function, and location of the organelles.**

**You should have explored the following organelles within "The Virtual Cell": Please check off the ones you viewed.**

1. \_\_\_\_\_ Mitochondria
2. \_\_\_\_\_ Centrioles
3. \_\_\_\_\_ Smooth Endoplasmic Reticulum (ER)
4. \_\_\_\_\_ Rough Endoplasmic Reticulum (ER)
5. \_\_\_\_\_ Lysosomes
6. \_\_\_\_\_ Golgi Body
7. \_\_\_\_\_ Nucleus (chromatin, nucleolus, ribosomes)
8. \_\_\_\_\_ Chloroplast
9. \_\_\_\_\_ Cell Membrane

**Use your Organelle Table (and tour the virtual cell again if necessary) to answer the following questions.**

1. Describe the structure of lysosomes.
2. What are the functions of lysosomes?
3. What is autolysis (done by lysosomes)?
4. Why is the inner membrane of mitochondria ruffled?
5. Describe the outer membrane of the nucleus.
6. What makes rough ER "rough"?