

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

## The Virtual Cell Tour and Other Websites

Useful Addresses: [www.virtualcell.com](http://www.virtualcell.com)

(<http://www.ibiblio.org/virtualcell/index.htm>)

Go to the virtual cell website by typing in the first address listed above. Click on the school bus to begin the tour!

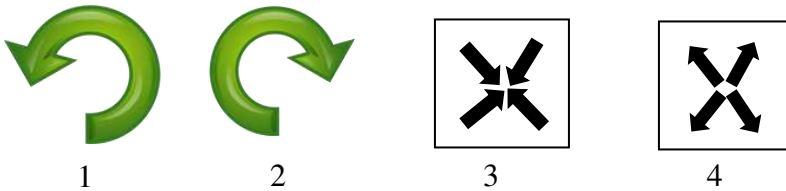
Move the cursor around the cell. To the left of the cell is a box. Note how the picture changes to a different organelle as you move the cursor around. The name and picture of the organelle is given to you.

When you find the organelle you want, left click on the mouse. You can always hit the “back” button on your screen to return to the main cell.

Ready!

Locate the centrioles on the cell. When you do, left click the mouse.

Note the blue arrow on the left side of the screen. Left click on the arrow. You should be back at the main cell again. Click on the centrioles again. Now, at the top of the screen, you should see three buttons.

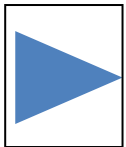


If you click on button #1, it will rotate the image counter clockwise. Go ahead and try it!

Button #2 will rotate the image clockwise. Try it.

If you click on button #3, it will zoom in to the image. When you want to zoom out, hit button #4 which has the arrows pointing in the other direction.

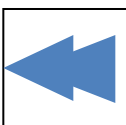
To the left of the screen are blue arrows. Each one has a specific function:



This arrow moves up one slide at a time.



This arrow moves back one slide at a time.



This arrow will bring you back to the beginning (the main cell) at any time.

Find the mitochondria and left click on the image. At the top of the screen, it reads “Mitochondria (1 of 3).” This means there are three slides to read for the mitochondria. To advance to the next slide you must perform an action.

You must click on Cut the mitochondria to advance to the next slide. In order to move to slide 2, you guessed it, hit the arrow key to advance to the next slide.

Now you are ready to begin the tour!

You can begin with any organelle you want. Make sure you read the descriptions and fill in the attached worksheet as you go. You are also required to draw the organelles you see on the right side of the worksheet. Do your best.

**The Virtual Cell Worksheet**  
<http://personal.tmp.com/Jimr57/tour/cell/cell.htm>

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.

<b>Centriole</b>
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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.

<b>Lysosomes</b>
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3. **Chloroplasts** are the site of \_\_\_\_\_. They consist 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.

<b>Chloroplasts</b>
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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 membrane is \_\_\_\_\_ with a very large surface area. These ruffles are called \_\_\_\_\_. Mitochondria have their own \_\_\_\_\_ and manufacture some of their own \_\_\_\_\_.

<b>Mitochondrion</b>
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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.

**Endoplasmic Reticulum (ER)**

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.

**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.

**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 \_\_\_\_\_.

**Nucleolus**

The thick ropy 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.

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**

