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## *Cells Alive - Internet Lesson*

Credit: <http://www.biologycorner.com/worksheets/cellsalive.html>

URL: [www.cellsalive.com](http://www.cellsalive.com)

Objective: You will look at computer models of cells, learn the functions and the descriptions of the cells and their components.

Navigating the Site: Cells.alive has a navigation bar at the left. After accessing the page, click on CELL BIOLOGY on the left-side navigation bar. From here, you will access the links: "How Big is a..." the animal cell model, the plant cell model, and the bacterial cell model.

### **Part A. "How Big Is A ..."**

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). Begin by gradually increasing the magnification using the arrow above the scale. As you zoom in, you can move your cursor over the list of items on the right to identify what is currently in the image. The line in the bottom right corner of the screen is used to help you estimate. Sketch each of the objects.

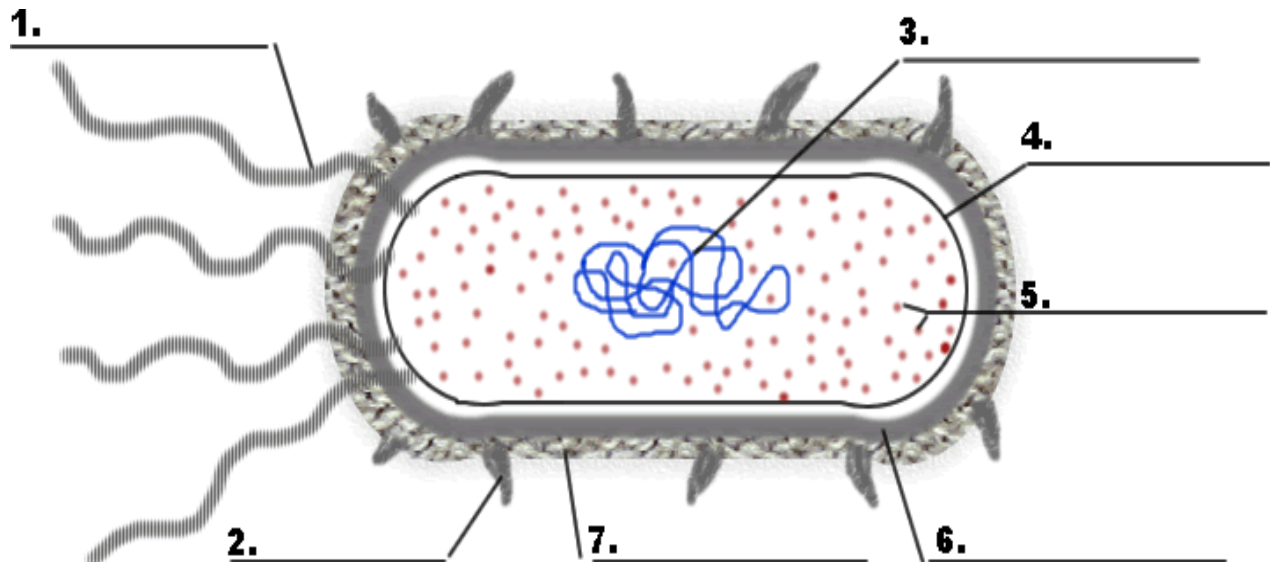
Object	Sketch	Size in nanometers, micrometers or millimeters
Human hair		
Dust Mite		

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Red Blood Cells		
E. Coli		
Staphylococcus		
Ebola virus		
Rhinovirus		

Part B. Bacterial Cell Model (you will need to return to the "Cell Biology" link to



access this page, or hit your back button).

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**Part C: Animal Cell Model** (again, you 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. Also can use the site [www.virtualcell.com](http://www.virtualcell.com) for this.

1. What do mitochondria do?
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?
7. Cytosol goes by what other name?
8. What is the function of the cytosol?
9. What is the function of the lysosome?

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Sketch each of the following.

Mitochondria
Lysosome
Golgi Apparatus
Rough ER

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

1. What other type of cell has a cell wall?
2. What makes the plant cells green?
3. In plant cells, what does the vacuole do?

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Sketch the following.

Chloroplast
Vacuole

### Part E. Overview

For the chart below, place a check in the box if the cell has that component.

	Plant	Animal	Bacteria
Chloroplast			
Vacuole			
Ribosome			
Mitochondria			
DNA			
Endoplasmic Reticulum			
Cell Wall			
Golgi Apparatus			

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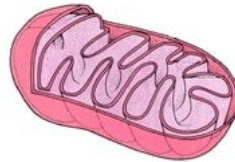
## CELL QUIZ

1. What part of the cell is responsible for breaking down and digesting things?

- ☐ Ribosomes
- ☐ Lysosomes
- ☐ endoplasmic reticulum
- ☐ vacuole

2. Identify the organelle pictures.

- ☐ Chloroplast
- ☐ endoplasmic reticulum
- ☐ golgi apparatus
- ☐ mitochondria



3. What part of the cell serves as the intracellular highway?

- ☐ endoplasmic reticulum
- ☐ golgi apparatus
- ☐ cell membrane
- ☐ mitochondria

4. Which of the following would you NOT find in a bacterial cell?

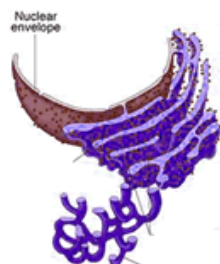
- ☐ DNA
- ☐ cell membrane
- ☐ golgi apparatus
- ☐ ribosomes

5. Which of the following is found in plant cells, but not animal cells?

- ☐ cell wall
- ☐ vacuole
- ☐ mitochondria
- ☐ endoplasmic reticulum

6. The jellylike interior of the cell is called

- ☐ vacuole
- ☐ cytoplasm
- ☐ cytoskeleton
- ☐ nucleus



the:

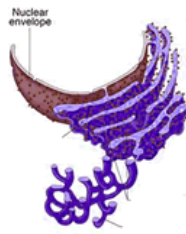
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7. Identify the organelle

- ☐ golgi apparatus
- ☐ endoplasmic reticulum
- ☐ mitochondria
- ☐ lysosome



8. What part of the cell makes proteins?

- ☐ Ribosomes
- ☐ Mitochondria
- ☐ Lysosomes
- ☐ vacuole

9. Where are ribosomes usually located in animal and plant cells?

- ☐ inside the nucleus
- ☐ near the cell membrane
- ☐ on the endoplasmic reticulum
- ☐ inside the vacuole

10. What part of the cell serves to process, package and export proteins?

- ☐ Mitochondria
- ☐ endoplasmic reticulum
- ☐ nucleolus
- ☐ golgi apparatus