

AP Biology

Welcome to AP Biology! This course is designed to teach you the equivalence of an introductory college biology course with the goal to prepare you for the AP Biology exam in early May.

Be prepared to have fun as we explore how God has made this world work. In class there will be labs, data analysis and note taking. Outside of class I will ask you to listen to some of the Bozeman Science videos.

It will help you if you refresh your memory and mentally prepare for AP Biology beginning this summer. The goal of the summer assignment is to help you be successful from day one of the course. Coming to class the first day knowing the content of the summer assignment will give you a boost in the class.

The summer assignment is fairly easy. It is based off of material you had in 7th grade life science and (if you took it) 11th grade biology. It should only take you one to two hours to do this assignment. You need to review the parts of the cell (who doesn't remember the cell cake!) and their functions. I have included a picture and a list of all of the parts of a cell. Your assignment is to fill in the missing material. There is also a cell city assignment where you use a city as an analogy for the cell. I will collect your assignment on the first day of class. There will be a quiz on the assignment the first week of school.

Optional internet sources:

<http://www.bozemanscience.com/ap-biology/>

specifically <http://www.bozemanscience.com/043-cellular-organelles>

and <http://www.bozemanscience.com/015-cell-membrane>

<https://www.khanacademy.org/test-prep/mcat/cells/eukaryotic-cells/a/organelles-article>

any online dictionary

<http://ib.bioninja.com.au/>

Optional apps for learning about cells (you may already have these on your iPads)
iCell

Cell part	Plant/animal/both	Function
Cell junctions (adhering, tight, gap)		
Cell membrane		
Cell wall		
Central vacuole		
Centrosome		
Chloroplasts		
Cilia		
Cytoplasm		
Cytoskeleton		
Flagella		
Golgi		
Lysosomes		
Mitochondria		
Matrix		

Microtubules/ cytoskeleton		
Nucleus		
Nucleolus		
Nuclear membrane		
Nuclear pores		
Ribosome		
Rough ER		
Smooth ER		
Vacuole		
Vesicle		

What is the difference between prokaryotes and eukaryotes?

What is the endosymbiosis theory? Which organelles does it apply to?

Cell City Analogy

In a far away city called Grant City, the main export and production product is the steel widget. Everyone in the town has something to do with steel widget making and the entire town is designed to build and export widgets. The town hall has the instructions for widget making, widgets come in all shapes and sizes and any citizen of Grant can get the instructions and begin making their own widgets. Widgets are generally produced in shops around the city, these shops can be built by the carpenter's union (whose headquarters are in town hall).



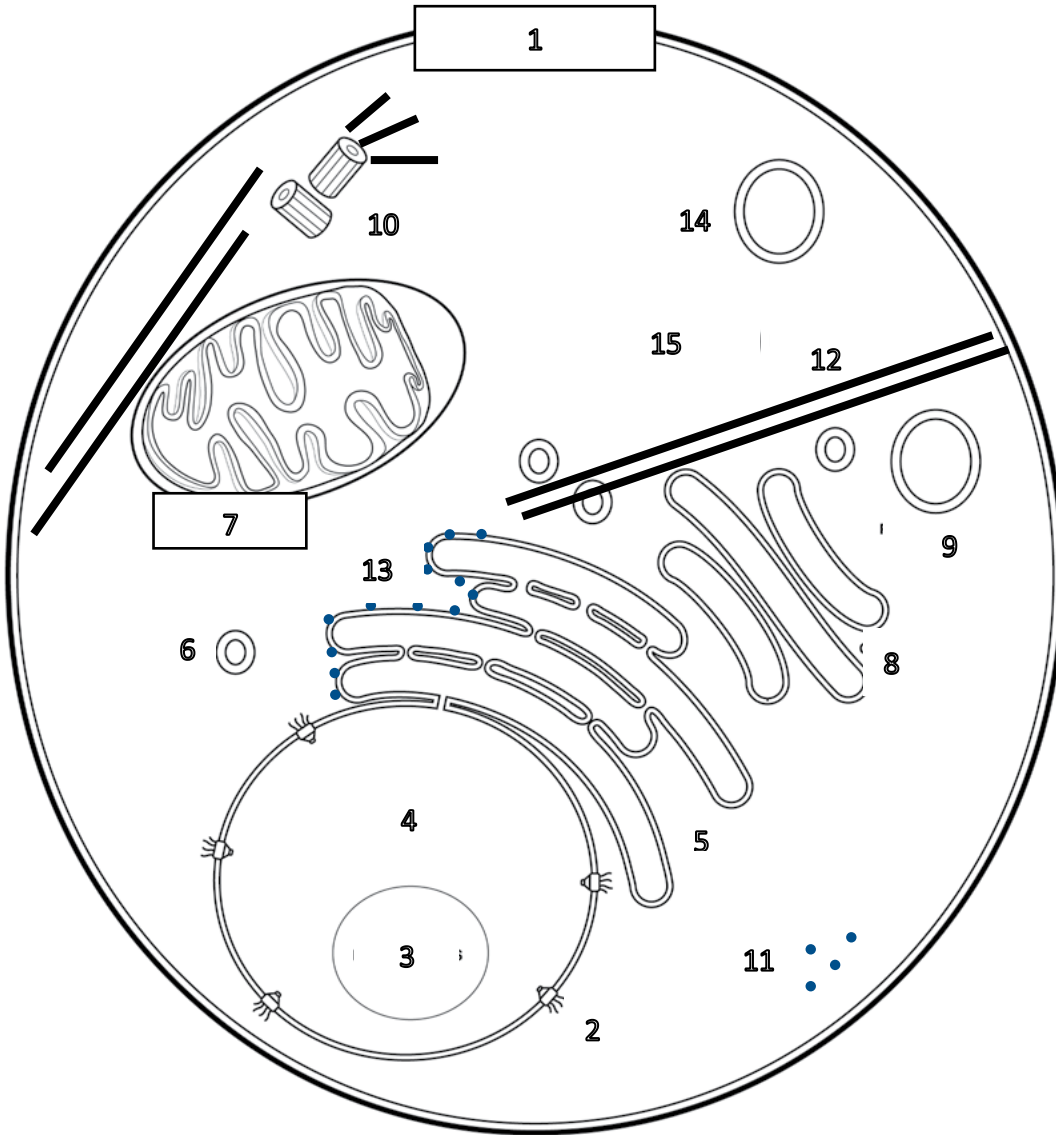
After the widget is constructed, they are placed on special carts which can deliver the widget anywhere in the city. In order for a widget to be exported, the carts take the widget to the postal office, where the widgets are packaged and labeled for export. Sometimes widgets don't turn out right, and the "rejects" are sent to the scrap yard where they are broken down for parts or destroyed altogether. The town powers the widget shops and carts from a hydraulic dam that is in the city. The entire city is enclosed by a large wooden fence, only the postal trucks (and citizens with proper passports) are allowed outside the city.

Match the parts of the city (underlined) with the parts of the cell.

1. Mitochondria _____
2. Ribosomes _____
3. Nucleus _____
4. Endoplasmic Reticulum _____
5. Golgi Apparatus _____
6. Protein _____
7. Cell Membrane _____
8. Lysosomes _____
9. Nucleolus _____
10. Vesicles _____
11. RNA _____



Match the words with the numbers.



Nucleolus
Cell membrane
Cytoplasm
Golgi Body
Nuclear Pore

Mitochondria
vesicle
cytoplasmic ribosomes
centrosome
Smooth ER

Nucleus
vacuole
Lysosome
cytoskeleton
Rough ER

Use the description below to trace out the pathway of secretory protein production on the picture.



The endoplasmic reticulum (ER) is the first stop for proteins that are secreted to the plasma membrane. Ribosomes on the ER make proteins, which are then packaged into vesicles. The vesicles move through the Golgi Apparatus on their way to the cell surface.

