Biology Summer Assignments

Welcome Mustangs!

The following summer assignments are to assist you in obtaining background information for topics we will be learning during 1st quarter, in Biology. Please have your **summer assignments completed by Wednesday, August 15th**. Your **1st Quiz will be on Friday, August 17th.**

Please follow the directions carefully, we expect that **each summer lesson will take approximately 1 hour** to complete.

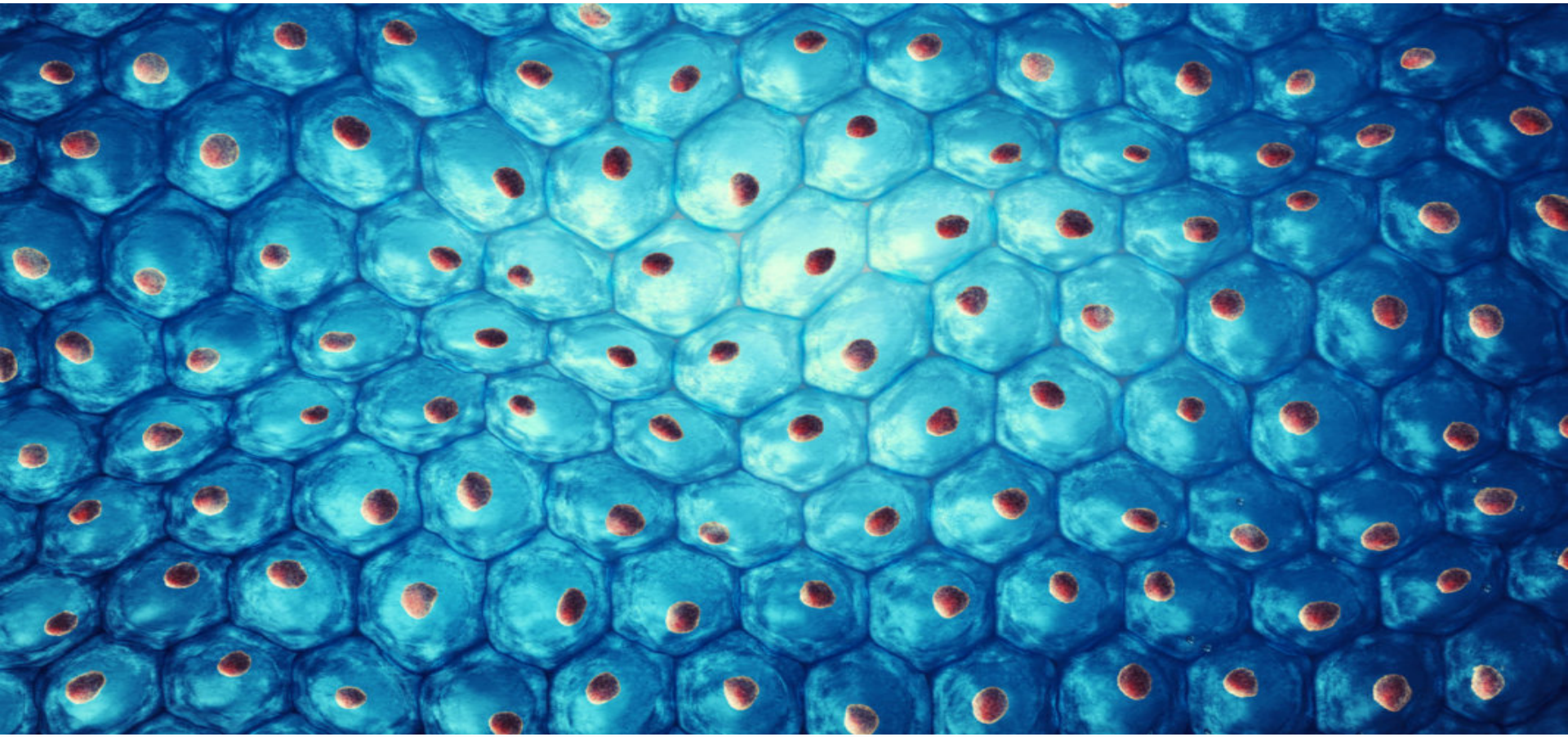
Sincerely,

Your Biology Teachers

Setting Up Your Science Binder

- Obtain a 1” or larger 3-ring binder.
- Obtain 10 section dividers and label them as follows:
  - Bio Basics
  - Ecology
  - Cell Structure
  - Cell Transport
  - Cellular Energy
  - Cell Division
  - DNA
  - RNA
  - Genetics
  - Evolution

Cell Structure



Cell Structure Section Checklist:

- Please print the standards & learning scale for the Cell Structure Section to be used as the 1st page(s) in the Cell Structure Section of your Notebook.
- Complete Assignment # 1 – "Types of Organisms Chart" which can be found and printed within this powerpoint. Please use the following links as a resource to better understand cell structure and function.

  Ricochet Science: Prokaryotic Vs. Eukaryotic Cells
  https://www.youtube.com/watch?v=RQ-SMCmWB1s&feature=youtu.be
  Learn Biology: Cells—Prokaryotic Cells vs. Eukaryotic Cells
  https://www.youtube.com/watch?v=WRO-DPyB9Bk
  Fuse School: What are viruses?
  https://www.youtube.com/watch?v=rWkNvIUthBI
- Complete Assignment # 2 - "Cell Structure and Function Chart" which can be found and printed within this powerpoint. Please use the following links as a resource to better understand cell structure and function.

  Biology: Cell Structure

  https://www.youtube.com/watch?v=cbiyKH9uPUw

  Cells Alive Interactive

  https://www.cellsalive.com/cells/cell_model_js.htm

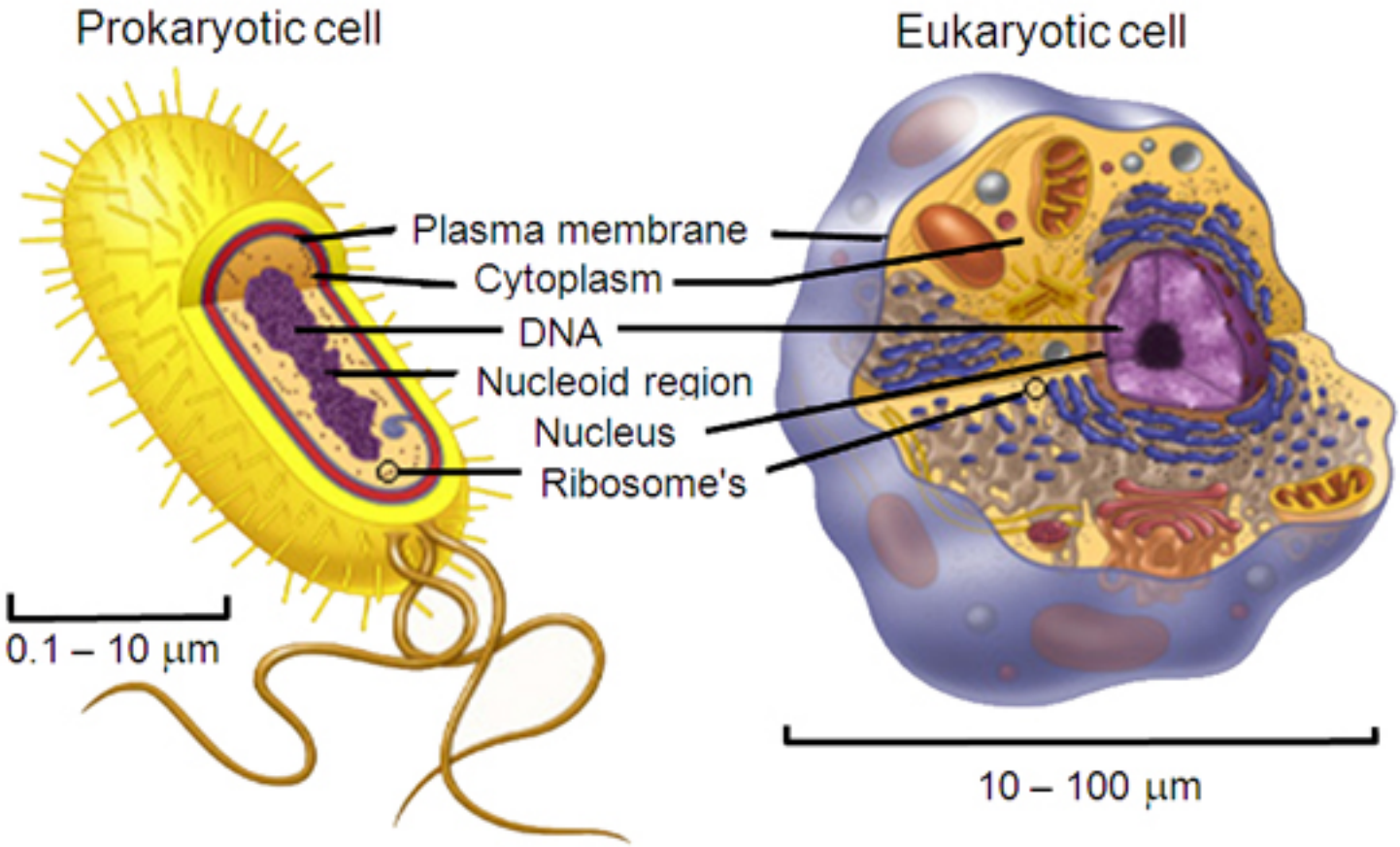
Cell Structure Standards: Print this page!

- SC.912.L.14.1 Describe the scientific theory of cells and relate the history of its discovery to the process of science (2)
- SC.912.L.14.2 Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport) (2)
- SC.912.L.14.3 Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells (2)
- SC.912.L.14.4 Compare and contrast structure and function of various types of microscopes (2)
- SC.912.N.1.1 Define a problem based on a specific body of knowledge, for example: biology.
- SC.912.N.1.4 Identify sources of information and assess their reliability according to the strict standards of scientific investigation.
- SC.912.N.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.

Cell Structure Standards: Print this page!

Score	Learning Progression
4	I am able to: ○ Apply concepts from previous levels in a laboratory setting, using the scientific process. ○ Expand on the ideas presented in the previous level by relating the concepts to real world events and situations.
3 (Target)	I am able to: A. Describe the scientific theory of cells and relate the history of its discovery to the process of science. B. Relate structure to function for the components of plant and animal cells. C. Explain the role of cell membranes as a highly selective barrier. (passive and active transport). D. Compare and contrast the general structures of plant and animal cells. E. Compare and contrast the general structures of prokaryotic and eukaryotic cells. F. Compare and contrast structure and function of various types of microscopes.
2	I am able to: A. Give the names of the scientists and their research that led to the cell theory. B. Give the function of the plant and animal organelles. C. Describe types of passive and active transport. D. Identify organelles in plants and/or animal cells. E. Identify structures in prokaryotic and/or eukaryotic cells. F. Identify various types of microscopes by their structure and function.
1	I am able to: A. Recognize the three parts of the cell theory. B. Memorize the organelles in plant and animal cells. C. Identify what passive and active transport are. D. Memorize organelles in plant cells or animal cells. E. Define prokaryote and eukaryote. F. List the three main types of microscopes. A-F. Use all vocabulary pertaining to the unit standards.

Prokaryotic vs Eukaryotic Cells



SC.912.L. Compare and contrast the general structures of prokaryotic and eukaryotic cells (2)

Assignment #1

- Cells need to carry on the same basic functions as we do to sustain life; the difference is cells do this with much smaller Use the following links to help you fill out the chart on the next slide. Use pen or pencil, no typing.
- *Video clip resources:*

  Ricochet Science: Prokaryotic Vs. Eukaryotic Cells
  https://www.youtube.com/watch?v=RQSMCmWB1s&feature=youtu.be

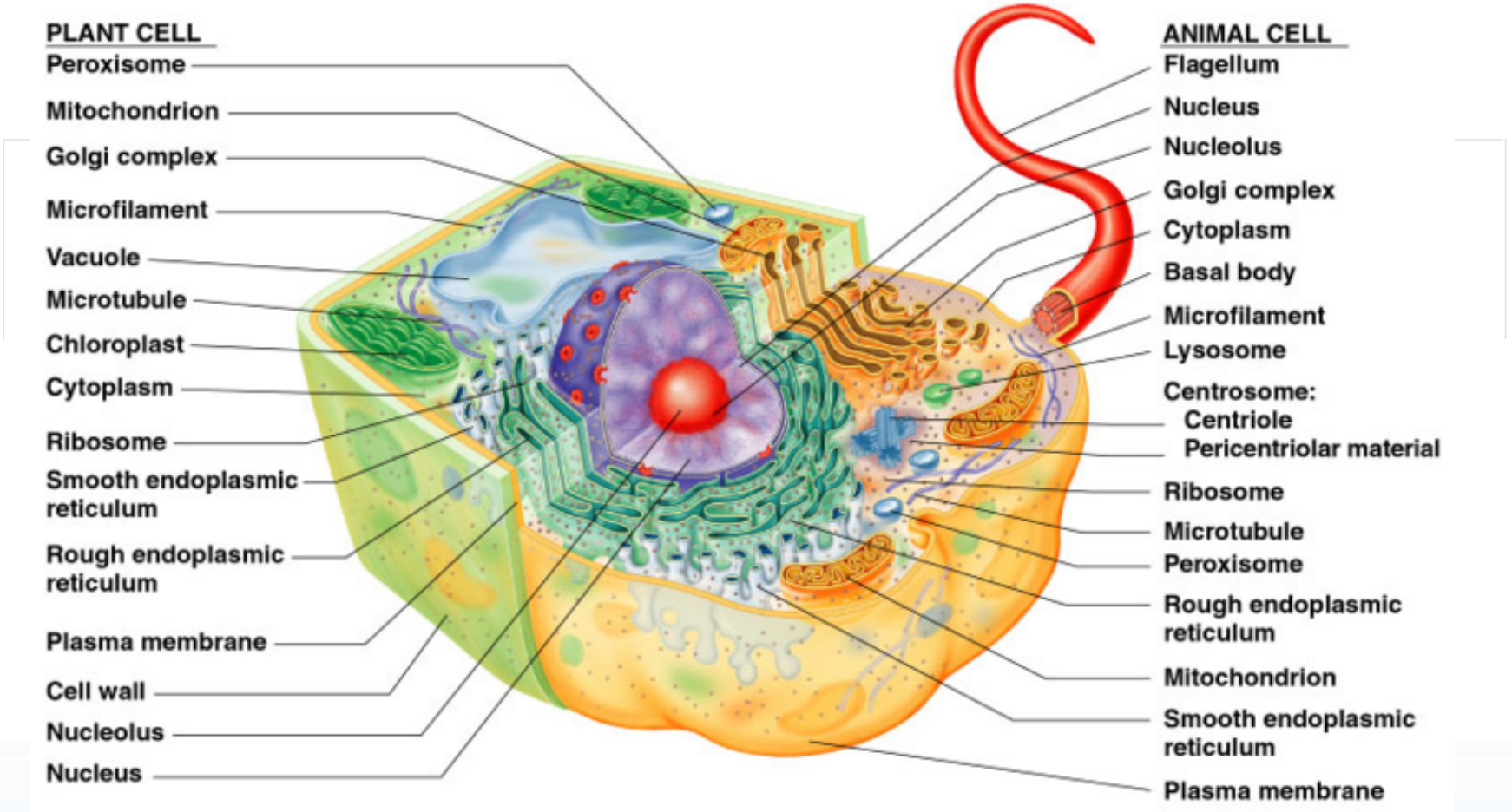
  Learn Biology: Cells—Prokaryotic Cells vs. Eukaryotic Cells
  https://www.youtube.com/watch?v=WRO-DPyB9Bk

  Fuse School: What are viruses?
  https://www.youtube.com/watch?v=rWkNvIUthBI

Assignment #1 – put in Cell Structure Section of your notebook

Types or Organisms Chart	Prokaryotes	Eukaryotes	Viruses
Examples of Organisms (at least two of each)			
Structures Found in Each (as many as you can find)			
Location of Nuclear Material			
Cell Wall Material			
Cell Membrane Material			
What membrane bound organelles are present?			

Plant vs Animal Cells



SC.912.L.14.2 Relate structure to function for the components of plant and animal cells
SC.912.L.14.3 Compare and contrast the general structures of plant and animal cells.

Cell Structure and Function Chart

Cells need to carry on the same basic functions as we do to sustain life; the difference is cells do this with much smaller parts. These smaller structures that allow the cell to function are called organelles-tiny organs. Some of these organelles make or contain macromolecules: lipids, nucleic acids, carbohydrates, or proteins. Use the following links to help you fill out the chart on the next slide. Use pen or pencil, no typing.

Biology: Cell Structure

- https://www.youtube.com/watch?v=cbiyKH9uPUw

Cell is Alive Interactive

- https://www.cellsalive.com/cells/cell_model_js.htm

Assignment #2 – put in Cell Structure Section of your notebook

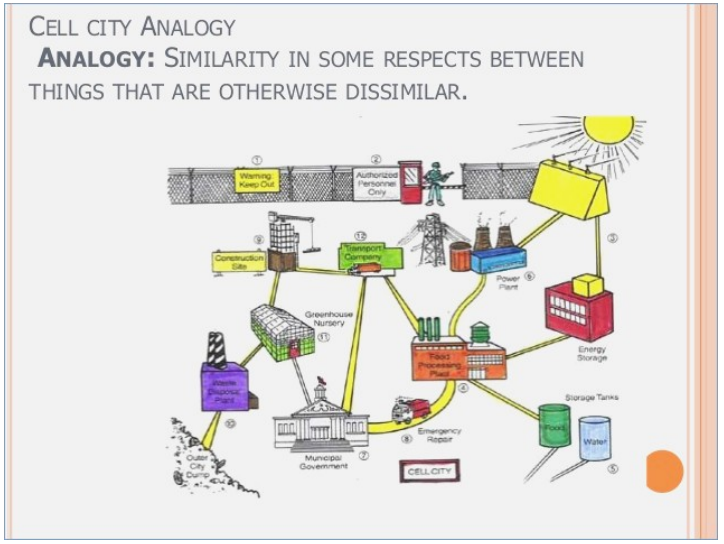
	Nucleus	Ribosomes	Cytoplasm	Smooth Endoplasmic Reticulum (ER)	Rough Endoplasmic Reticulum (ER)	Golgi Apparatus (body)
Draw or Paste Visual to Recognize Structure						
Function/Job/ Importance to the Cell				-Help synthesize (make) the lipids and carbohydrates used in the cell -	-Houses most ribosomes in order to modify their proteins -	
	Vacuoles	**Lysosomes**	**Mitochondria**	**Chloroplasts**	**Cell Wall**	**Cell Membrane**
Draw or Paste Visual to Recognize Structure						
Function/Job/ Importance to the Cell						-Regulates materials entering and leaving the cell; protects and supports the cell - Lipids make it up its structure

Cell Analogy Poster

Your Task: You will come up with an analogy for the cell and the following organelles: **ribosomes, nucleus, mitochondria, chloroplasts, smooth ER (endoplasmic reticulum), and cell membrane**. Your analogy will be represented in the form of a poster (8.5 x 11 inch sheet of paper) that represents a cell and its organelles. You should compare the roles of to a part of the analogy.

The poster: You should have a well-drawn or constructed picture of your analogy (i.e. if you were doing the city analogy you would have a picture of a city and each of the parts of your analogy) and short 2-3 sentence descriptions of each organelle function and analogy on the back of your 8.5 x 11 inch poster.

Please be sure to color and label the images.



Example: Cell City

The nucleus is the main control center of the cell. Therefore it is like the city hall where information, policy and governing are done to run the city.

The mitochondria of a cell are where energy is created. This would be the like power plant for the city.