Name: _____ Period: _____ Date: _____

Biology Mid-Year Review Packet: Cells

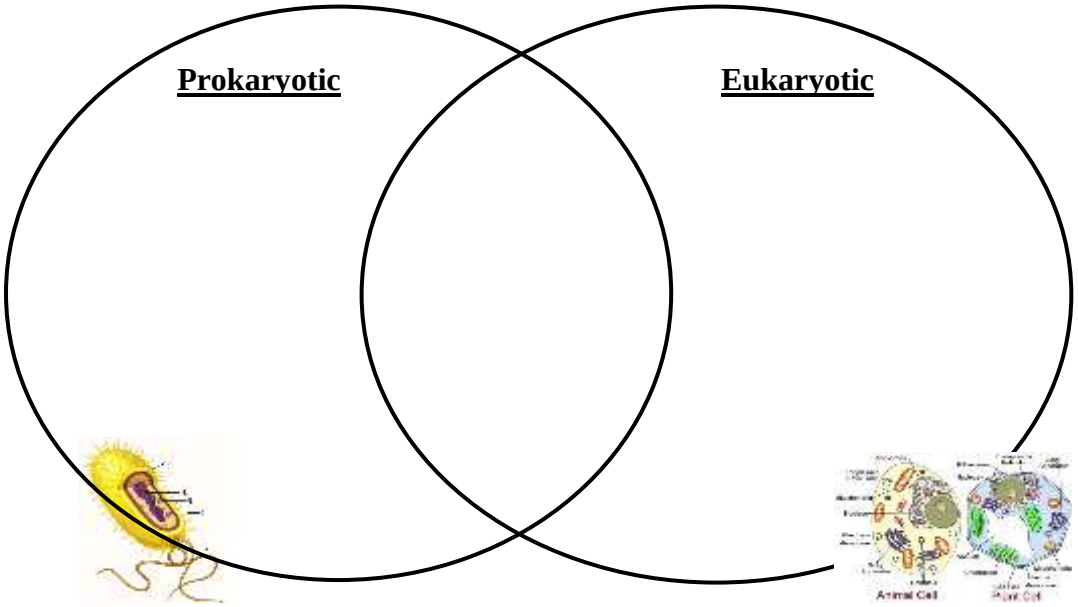
Topics:

- Prokaryotic vs. Eukaryotic Cells
- The Parts of a Cell (Organelles)
- Plant vs. Animal Cells
- The Cell Membrane
- Passive and Active Transport (across the cell membrane)

Prokaryotic vs. Eukaryotic Cells

1. What are the 3 parts of the cell theory?

2. Compare and contrast prokaryotic and eukaryotic cells using the Venn diagram below:



The Parts of a Cell (Organelles)

1. Compare Plant and Animal Cells using the T-Chart Below: *Write what only plants cells have below "plant cells", and write what only animal cells have below "animal cells"*

Plant Cells	Animal Cells

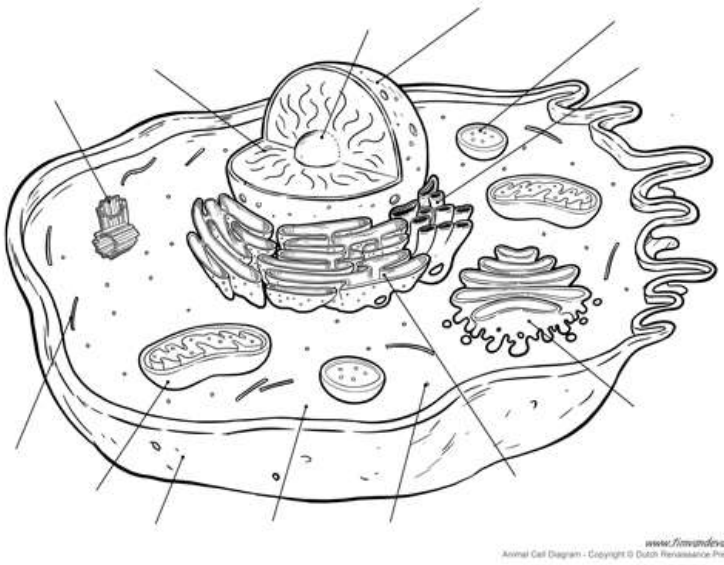
2. Match the correct organelles to their function (complete the table below):

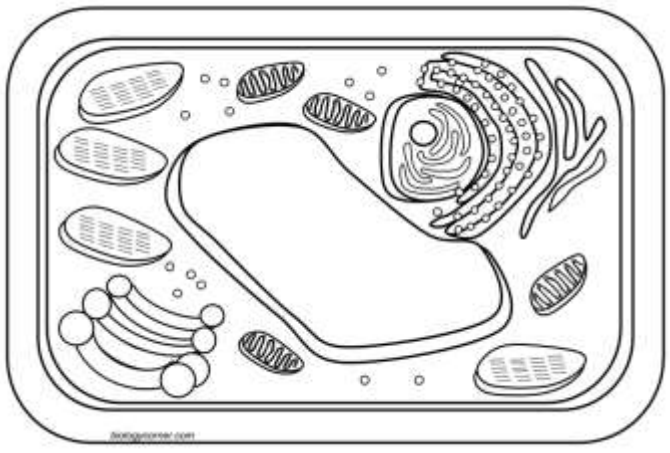
Word Bank:

Endoplasmic Reticulum	Lysosome	Nucleus	Cytoplasm	Golgi body
Cell Membrane	Ribosomes	Centrioles	Cilia	Cell Wall
Mitochondria	Flagella	Vacuole	Chloroplasts	Cytoskeleton

Organelle	**Function**
	Controls (directs) all of the cell's activities
	Make proteins
	Lets things in and out of the cell
	Helps move proteins in the cell
	Watery material that contains the organelles
	Hair-like structures that help the cell move
	A long tail-like structure that helps cells move
	Produces energy for the cell from the food that you eat
	Help organelles move and give the cell shape and structure
	Receives, packages, and distributes proteins
	Photosynthesis: makes its own food
	Protect the cell and give shape to the cell
	Stores water and other materials
	Breaks down waste and other substances
	Helps cells divide

3. Label the organelles on each cell:





In a faraway 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 small shops around the city. The supplies for making the widgets are stored in the storage center.

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 generator that is in the city. The entire city is enclosed by walls and doors, and the walls and doors are surrounded by a fence for extra protection.

All of the buildings in Grant City are held up by beams and poles to help keep them up. When citizens of Grant City get hungry, they can go to the restaurant and get food.

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

1. Ribosomes	
2. Protein	
3. Cytoskeleton	
4. Mitochondria	
5. Nucleus	
6. Endoplasmic Reticulum	
7. Golgi Apparatus	
8. Cell Wall	
9. Cell Membrane	
10. Lysosomes	
11. Chloroplast	
12. Vacuole	

The Cell Membrane

1. What are the 2 main functions of the plasma membrane?

2. The plasma membrane is selectively permeable. What does this mean?

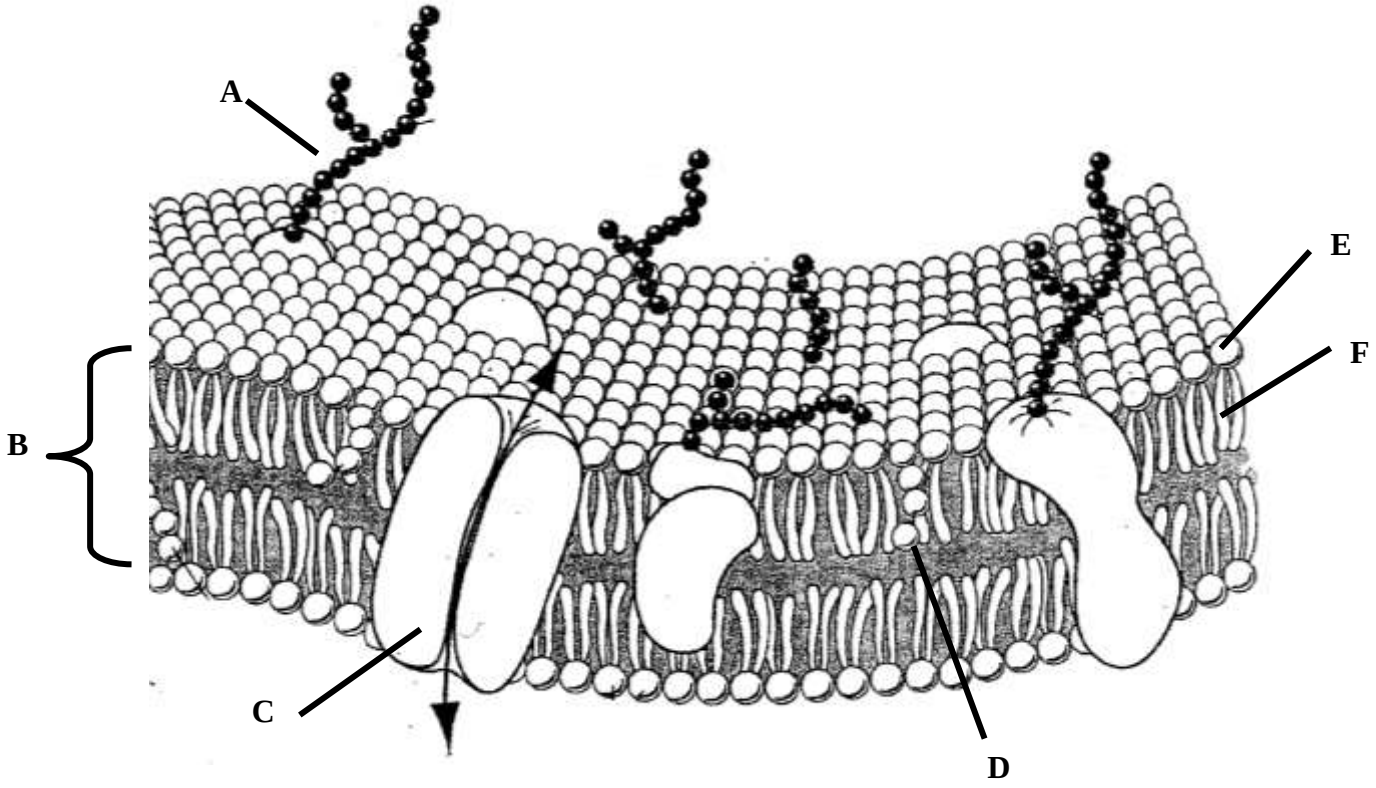
3. *Fill-in-the-Blank:*

The cell membrane is also called the _____ membrane and is made of a phospholipid _____. The phospholipids have a **hydrophilic** (water attracting) _____ and two **hydrophobic** (water repelling) _____. Phospholipids allow water and other molecules to pass through into or out of the cell.

Large molecules use _____ to pass through the cell membrane because they are too big to go through the phospholipid bilayer. Some of the proteins have _____ attached to help cells in recognize each other and certain molecules. _____ are in the phospholipid bilayer to help prevent the tails of the phospholipids from sticking together.

4. Correctly ***color code and identify*** the name for each part of the cell membrane.

Letter	**Name/Color**	**Letter**	**Name/Color**
_____	Phospholipid bilayer	_____	Protein Channels (red)
_____	Fatty acid tails (orange)	_____	Cholesterol (green)
_____	Phosphate heads (yellow)	_____	Carbohydrate Chains (purple)



5. What do the proteins do? _____

6. What do the carbohydrates do? _____

7. What do the cholesterol do? _____

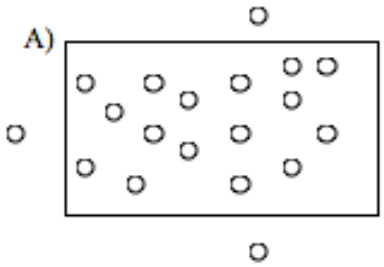
8. What is the phospholipid bilayer? _____

Passive and Active Transport

1. *List the 3 types of passive transport and the 3 types of active transport in the chart below:*

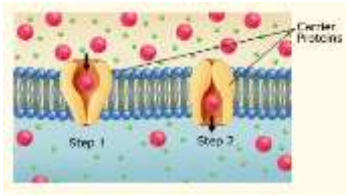
Passive Transport	Active Transport

2. *Diffusion*: Draw arrows in the picture below to show which way the molecules will diffuse across the cell membrane.



3. TRUE or FALSE: after equilibrium is reaches and there is the same amount of molecules on both sides of the cell membrane, the molecules continue to diffuse back and forth.

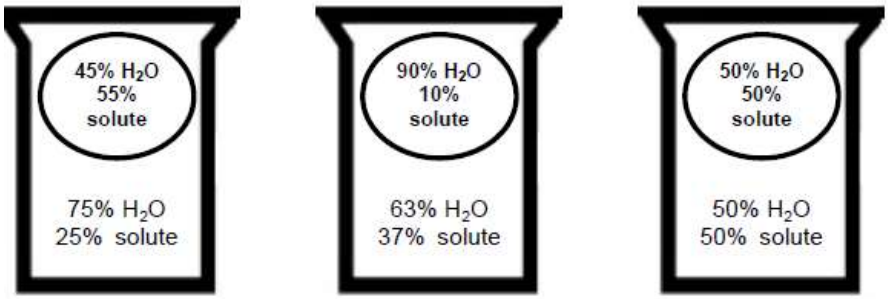
4. *Facilitated Diffusion:* What is the difference between diffusion and facilitated diffusion? (hint: look at the picture below)



Osmosis

5. What is osmosis?

6. Identify the type of solution the cell is in and then draw an arrow showing which way the WATER diffuses.



7. In a _____ solution, water goes INTO the cell, causing the cell to _____

8. In a _____ solution, water goes OUT OF the cell, causing the cell to _____

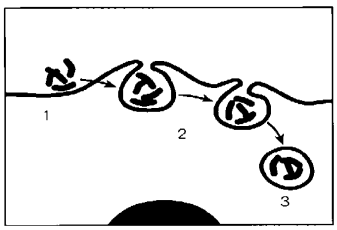
9. In a _____ solution, water goes INTO and OUT OF the cell, causing the cell to

_____

Active Transport

1. Does active transport require energy? _____

2. Below is a picture of endocytosis and exocytosis. Determine which is which.



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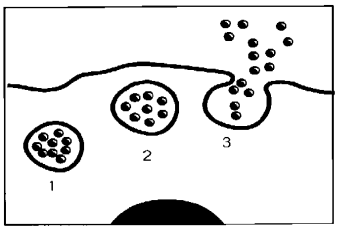

_____

3. In what direction does active transport move molecules? _____

4. What is the difference between endocytosis and exocytosis?

5. What is the difference between phagocytosis and pinocytosis?

COMPARE/CONTRAST the kinds of transport	**Active or Passive**	**Does it need energy?**	**Do the molecules move *down (high to low)* or *against (low to high)* the concentration gradient?**	**Types of Molecules (small, large, water, solid, liquid, one, many)**
DIFFUSION				
FACILITATED DIFFUSION				
OSMOSIS				
PROTEIN PUMPS				
ENDOCYTOSIS (phagocytosis)				
ENDOCYTOSIS (pinocytosis)				
EXOCYTOSIS				

Fill in the Chart with the following words: Osmosis, Active Transport, Facilitated Diffusion, Diffusion, Exocytosis, Endocytosis, Passive Transport, Protein Pumps. Be sure to ***DESCRIBE*** *the vocab word in each of the boxes!!!*