SOL REVIEW **Biology I**

DAYSHEET 74: SOL Review Part III: Cells

Name: _____ Date: _____

Catalyst/Bellringer: Because of our shortened class period today, please follow these instructions in order to start Part III of our SOL review:

1. Take out your tablet
2. Go to www.biomonsters.com
3. Click on Academic Biology
4. Click on Video Podcasts
5. PLAY the SOL Review Part 3: Cells Podcast

Please remember you are expected to use every minute of class time to prepare for the SOL!!!!

Cells

1. There are two types of cells: _____ and _____

	Prokaryotes	**Eukaryotes**
Kingdoms of Life		
Size?		
Simple or Complex?		
Nucleus?		
Membrane-bound organelles?		

2. There are two main type of eukaryotic cells: _____ and _____

	Plants	**Animals**
Nucleus?		
Mitochondria?		
Cell wall?		
Chloroplast?		
Large central vacuole?		

3. Here are some of the important cell parts:

Nucleus = _____

Ribosome = _____

Mitochondria = _____

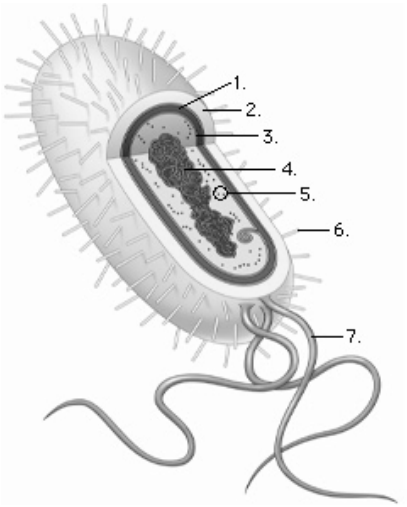
Chloroplast = _____

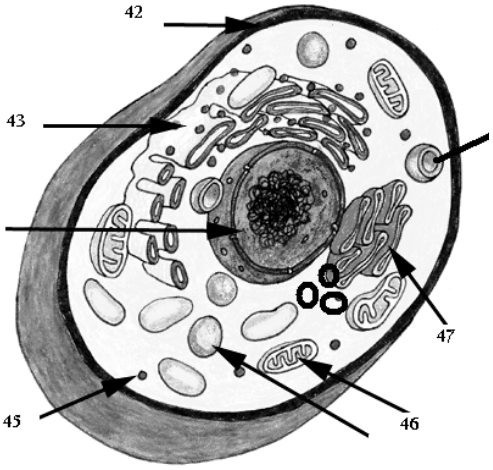
Cell Membrane = _____

Cytoplasm = _____

Lysosome = _____

Vacuole = _____





4. Photosynthesis uses energy from the _____ to make _____ energy (food). The equation for photosynthesis is:

5. Aerobic respiration breaks down _____ to make usable _____ (_____). The equation for respiration is:

6. There are two types of cellular respiration: _____ and _____. Aerobic uses _____. Anaerobic does not use _____.

7. The cell membrane lets some things enter the cell, but keeps other things out. It is _____.
It looks like this:

8. There are four types of transport:

	Diffusion	**Osmosis**	**Facilitated Diffusion**	**Active Transport**
Passive or Active?				
What is being transported?				
High → Low or Low → High?				
Do proteins help?				
Does it need energy?				

9. Where will the water go? Water likes to go from areas of _____ concentration to areas of _____ concentration. Pure or _____ water has a high concentration.

SOL Top Facts to Know: Cells

Activity 1: Organelle Function

Directions: Match the organelles on the left with their functions on the right! If you have trouble remembering, MAKE FLASHCARDS!!!

1. Mitochondria	a. fluid-filling of the cell; mostly water
2. Chloroplast	b. breaks down and recycles molecules; only in animal cells
3. Cell Membrane	c. contains the cell's DNA; control center of the cell
4. Cytoplasm	d. site of protein synthesis
5. Lysosome	e. selectively permeable lipid bilayer; controls what enters and exits
6. Nucleus	f. breaks down glucose into usable energy (ATP); uses oxygen
7. Ribosome	g. converts light energy into chemical energy (food); only in plant cells
8. Cell wall	h. stores nutrients and water; only in plant cells
9. Large central vacuole	i. provides support and protection in plant cells only

Activity 2: Types of Cells

Directions: Using the list of organelles above, answer the following questions

1. Which organelles that are found in BOTH prokaryotes and eukaryotes? (Hint: There are 4)

2. Which organelles are found ONLY in EUKARYOTES? (Hint: There are 4)

3. Which organelles are found in BOTH plant and animal cells? (Hint: There are 5)

4. Which organelles are found ONLY in PLANT cells? (Hint: There are 3)

5. Which organelle is found ONLY in ANIMAL cells? (Hint: There is 1)

Directions: Use your answers to the previous section to help you answer the questions below

1. A scientist is examining a cell under the microscope. The cell has ribosomes, a cell wall, and a region of loose DNA not in a nucleus. What type of cell is it?
A. Prokaryote
B. Eukaryote
C. Prokaryote or Eukaryote

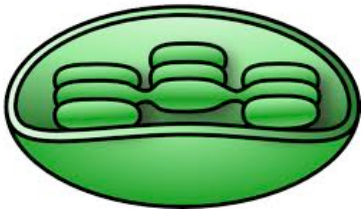
2. A student is examining a cell under the microscope. The cell has ribosomes, a cytoplasm, and a cell membrane. What type of cell is it?
A. Prokaryote
B. Eukaryote
C. Prokaryote or Eukaryote

3. A student is examining a cell under the microscope. The cell has mitochondria, chloroplasts, and a cell membrane. What type of cell is it?
A. Prokaryote
B. Eukaryote
C. Prokaryote or Eukaryote

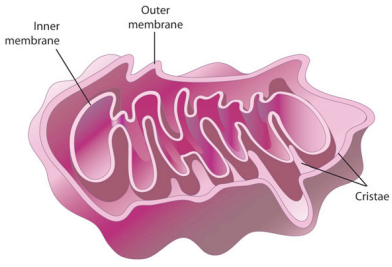
4. A scientist is examining a cell under the microscope. The cell has a cell wall, a nucleus, and several chloroplasts. What type of cell is it?
A. Plant
B. Animal
C. Plant or Animal

5. A scientist is examining a cell under the microscope. The cell has nucleus, several mitochondria and a cell membrane. What type of cell is it?
A. Plant
B. Animal
C. Plant or Animal

Activity 3: Photosynthesis and Respiration
Directions: Complete the following diagram using the words below showing the relationship between photosynthesis and respiration.
Oxygen (O2) Carbon Dioxide (CO2) Glucose Water Light ATP



Chloroplast (Photosynthesis)



Mitochondrion (Respiration

Directions: Fill in the chart below by placing a check in the appropriate boxes

	Photosynthesis	Cellular Respiration
Occurs in the chloroplast		
Occurs in the mitochondrion		
Uses Oxygen		
Releases Oxygen		
Uses Glucose		
Makes Glucose (Food)		
Uses Carbon Dioxide		
Releases Carbon Dioxide		
Uses Light Energy		
Makes ATP (Energy)		
Occurs in plants only		

Types of Transport
Directions: Identify the type of transport being described in each statement.
Facilitated Diffusion **Osmosis** **Active Transport** **Diffusion**

1. A molecule of salt moves into the cell from a high concentration to a low concentration without the use of cell energy or proteins _____

2. Water moves into the cell from a high concentration to a low concentration. _____

3. There is a higher concentration of potassium inside the cell, but the cell continues to pump more potassium inside with the help of ATP and proteins _____

4. Chloride ions move from an area of high concentration inside the cell to an area of low concentration by flowing through a protein channel. No ATP is necessary. _____

Directions: Use the terms below to describe what will happen to the cell in each of the following scenarios. HINT: Remember that water likes to go from HIGH to LOW.

Cells will shrivel **Cells will expand** **Cells will stay the same**

1. A piece of potato is soaked in very salty water _____

2. Red blood cells are put in distilled (pure) water _____

3. 4.

_____ _____