

Semester 1 Final Exam Study Guide

Body Systems, Homeostasis, Feedback (Test Monday, January 22)

Movement of Molecules:

1. What is the difference between diffusion and active transport? Draw a diagram for each one.

Review the Cell Model Lab.

2. What materials could go through the membrane? Explain why.
3. How is the model similar and different from living cell membranes?

Draw and label the following body systems:

1. Circulatory System (heart, arteries, veins, capillaries. Extra: vena cava, aorta)
2. Urinary system (include nephron) (kidneys, ureter, bladder, urethra)

Nephron: Review the parts of the nephron. (vein, artery, capillaries, glomerulus, tubules).

1. What molecules are filtered out of the blood into the tubules and then reabsorbed into the blood?
2. What molecules are NOT filtered out of the blood?
3. What molecules are not reabsorbed into the blood and instead go out the urine?
4. How does this process help regulate water, salt and toxin (urea) levels?

Draw/describe where the following systems interact and what materials are exchanged

1. Circulatory system and muscle
2. Circulatory system and lung
3. Circulatory system and kidney
4. Circulatory system and intestine

Define and give examples of:

1. Negative feedback
2. Positive feedback
3. Diffusion
4. Active Transport
5. Levels of organization in bodies

These are different conditions that must be maintained for homeostasis in a living organism. Give a brief description of where and what happens in the body to keep these conditions at optimal levels.

1. Temperature:
2. pH:
3. water level:
4. salt level:
5. toxins in blood:
6. blood pressure:

Matter and Energy Key Vocabulary:

- Matter
- Energy
- Atom
- Molecule
- Mass
- Organic
- Inorganic
- High energy bond

1. 3 rule of atoms

- _____
- _____
- _____
- _____

2. What is the difference between atoms and molecules?

- Give examples of atoms
- Give examples of molecules

3. 23rules of energy

- _____
- _____
- _____

4. What atoms are involved in a high energy bond?

- _____

5. What kind of energy bonds are found in an oxygen molecule?

- _____

6. What kind of energy bonds are found in an ethanol, glucose, amino acids, fatty acids, etc?

- _____

7. What is difference between organic and inorganic molecules? Give 3 differences.

- _____
- _____
- _____

8. How does the mass of an object increase? Use your atom rules to explain.

9. True/False: Matter can convert into energy during a reaction. Why or why not?

10. Write in the formulas for the molecules below. Are they organic or inorganic? What kind of bonds do they have?

Salt (sodium chloride): _____

Glucose: _____

Carbon dioxide: _____

Water: _____

Cells Key Vocabulary

- Organelle
- Nucleus
- DNA
- Mitochondria
- Ribosome
- Cell membrane
- Chloroplast
- Plant Cell
- Animal cell
- Tissue
- Organ
- Organ system

CELL PART	FUNCTION IN A CELL
Nucleus	
DNA/Chromosome	
Mitochondria	
Chloroplast	
Ribosome	
Cell Membrane	

i.

2. What are 2 similarities between animal cells and plant cells?

-
-

3. What are 2 differences between animal cells and plant cells?

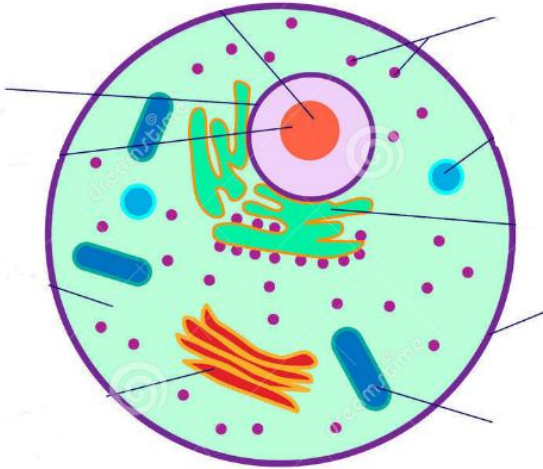
-
-

4. Know the 8 characteristics of life below. Use key vocabulary from above to help describe what the feature looks like in living organisms.

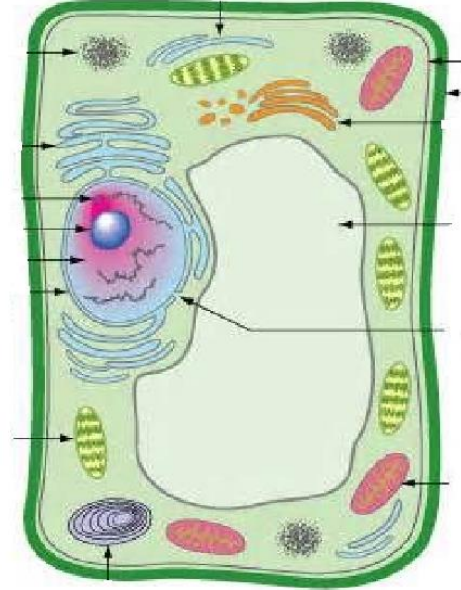
Characteristic of Life	Description of the Characteristic
Cells	
DNA	
Grow	
Reproduce	
Homeostasis	
Levels of Organization	
Respond to environment	
Process Energy	

5. Know the function for each cell organelle and be able to label it on a cell diagram. Practice below.

Animal Cell



PLANT CELL



Body System Key Vocabulary

- Digestive system
- Mouth
- Stomach
- Small intestine
- Large intestine
- Circulatory system
- Heart
- Blood vessels (arteries/veins)

1. What is the function of the digestive system? Use the words *mouth*, *stomach*, and *intestines* in your response.
2. What is the function of the circulatory system? Use the words *heart*, *blood vessels*, and *blood* in your response.
3. How do the digestive and circulatory systems work together to get nutrients to cells? (Combine the most important features from questions 1 and 2)
4. When cells take in food, what are the 2 processes they go through to use the organic molecules found in the food?
 -
 -

Energy Processes Key Vocabulary

- Biosynthesis
- Cellular Respiration
- Photosynthesis
- Large organic molecule
- Protein
- Fats
- Carbohydrates
- Small organic molecules
- Amino acids
- Fatty acids
- Glucose
- Carbon dioxide
- Water
- Oxygen
- Energy transfer
- Chemical energy
- Mitochondria
- Chloroplast
- Sunlight

1. What process do plants do in order to make food for themselves?
 -
2. Write down the formula for this process below. Label the matter inputs and outputs and the energy inputs.
3. Once plants make glucose, what are the 3 options for where it can go?
 -
 -
 -
4. What is cellular respiration? What is the overall goal?
5. Write down the formula for this process below. Label the matter inputs and outputs. Label what type of energy you find during this process and which molecules contain this energy.
6. What do all organisms use stored chemical energy for? Give 2-3 examples below.
 -
 -
 -
7. Describe what small organic molecules are and provide at least 3 examples.
8. Describe what large organic molecules are and provide at least 3 examples.
9. Describe what happens during biosynthesis. Use examples small and large organic molecules in your response.
10. Take a molecule from the mouth, through the digestive system, and entering into the bloodstream. Label when the molecule is a LOM and when it becomes a SOM. Take the molecule into a cell and describe how it goes through biosynthesis. (This is what we did with the dolphin...) You can do this with words or with a labeled diagram.