The Cell/Cell Transport &Cell Energy Study Guide

**Know these terms. Should be defined and turned in with the Unit Packet 3.

Cell Prokaryote
Eukaryote
Endosymbiotic Theory
Organelle
Cell Wall
Cytoplasm
Nucleus
Mitochondria
Chloroplast
Ribosome
Endoplasmic Reticulum
Golgi Apparatus
Lysosome
Vacuole
Cell Membrane Semi-Permeable Phospholipid Bilayer Cell transport
Cell Membrane
Selective Permeability
Phospholipid Bilayer
Transport Proteins
Passive Transport
Diffusion
Dynamic Equilibrium
Facilitated Diffusion
Osmosis
Isotonic Solution
Hypotonic Solution
Active Transport
Endocytosis Exocytosis
Photosynthesis
Thylakoid
Grana
Stroma
Light Reaction
Dark Cycle
Cellular Respiration
Glycolysis
Krebs/Citric Acid Cycle
Electron Transport Chain
Mitochondrial Matrix
Mitochondrial Membrane
ATP
Anaerobic
Aerobic Fermentation
Cell Theory

The Cell/cell transport Review

1) State the differences between a prokaryotic cell and a Eukaryotic cell. Draw and label these differences.
2) Name and explain purpose of all the Scientists we discussed in notes. Who was part of the cell theory and what is the cell theory?

Name (be able to locate in the cell) and state purpose for the following main organelles : Cell Wall Cytoplasm Nucleus Mitochondria Chloroplast Ribosome Endoplasmic Reticulum Golgi Apparatus Lysosome Vacuole

3) What is the purpose of a flagella or cilia?
4) Draw and label the cell membrane
5) What is the importance of the cell membrane?
6) Compare and contrast active and passive cell transport. Identify which processes are active and which are passive.

7) Illustrate what happens in each osmotic process – hypertonic, hypertonic and isotonic.

Photosynthesis Review

Match the terms below with the correct description

Chlorophyll	Light-independent reactions (DARK REACTION)
Chloroplast	Photosynthesis
Light-dependant reactions (LIGHT REACTION)	

a. _____energy-capturing portion of photosynthesis that takes place in thylakoid membranes of chloroplasts and cannot proceed without solar energy, it produces ATP and NADPH
b. _____green pigment that absorbs solar energy and is important in photosynthesis
c. _____ membrane-bounded organelle with chlorophyll – containing membranous thylakoids; where photosynthesis takes place
d. _____Process usually occurring within chloroplasts whereby chlorophyll traps solar energy and carbon dioxide is reduced to a carbohydrate.
e. _____Synthesis portion of photosynthesis that takes place in the stroma of chloroplasts and does not directly require solar energy; it uses the products of the light dependant reactions to reduce carbon dioxide to a carbohydrate

Answer the following questions

1. Explain the difference between autotrophs and heterotrophs. Give two examples of each.

2. Draw a picture of a molecule of ATP and an ADP molecule (make sure to KNOW the differences between these models). ALSO Label: adenosine, ribose, and phosphate groups. Also show the chemical bond that would be broken if energy needed to be released.

3. Explain why chloroplasts are green. What is the function of chlorophyll?

4. What is NADPH? What is the difference between NADP+, NADPH, ADP, and ATP? How does ATP turn into ADP+P?

5. Write the chemical equation and word equation for the process of photosynthesis.

6. What are the reactants and products of Light Reaction? Where in the chloroplast do they occur?
Reactants:
Products:
Location:

7. What are the reactants and products of Dark Reaction? Where in the chloroplast do they occur?
Reactants:
Products:
Location:

8.Describe steps of Light-Dependant reactions.

9.What is Light-Independent Reaction often called?

10.Where does the Carbon Dioxide come from? What will happen to it and what will it eventually become?

11.How many molecules of high-energy sugars are produced as a result of one Calvin Cycle?

12.What happens to water, CO2, and sunlight in photosynthesis, meaning what is created from these reactants?

Cellular Respiration

1. Write the overall reaction for cellular respiration.

2. What are the 3 phases of the cellular respiration process? Where does each occur in the cell? How much ATP is produced in each? What are the reactants and products in each stage?

Phase	Location	Reactants	Products	ATP Produced

3. How many ATP are produced in cell respiration from one glucose molecule?

4. In which phase of cellular respiration is carbon dioxide made?

5. In which phase of cellular respiration is water made?

6. In which phase of cellular respiration is oxygen a reactant?

7. In which phase of cellular respiration is glucose a reactant?

8. What steps does Aerobic Respiration consist of?

9. What steps does Anaerobic Respiration consist of?

10. Out of Aerobic and Anaerobic Respiration which process makes the most ATP for the cell? What is the difference between the two? Name the steps of each.

11. Name the two types of fermentation. What is the difference between the two? Where are they found to occur?

Along with the study guide, review all of your notes given on the cell, cell transport photosynthesis, cell respiration and fermentation.

Test is Wednesday – October 2nd.

Red Blood Cells in Solutions