Unit One Home Assignment Three
Chapter 3 Cells

Diffusion, Facilitated Diffusion, and Active Transport

1. In the video, what type of molecule is moving by simple diffusion.
2. What are the characteristics of simple diffusion?
3. What is different about facilitaed diffusion?
4. What is the "energy currency" of the cell?
5. What are the characteristics of active transport?

Osmosis and Tonicity (3 min)

1. What must be present in order to have osmosis?
2. What is osmosis?
3. What is tonicity?
4. What is the direction of water movement across a semipermeable membrane in terms of tonicity?
5. What happens to a RBC when placed into a hypotonic solution?
6. What happens to a RBC when placed into a hypertonic solution?
7. What happens to a RBC when placed into an isotonic solution?

A Tour of a Cell (14 min)

1. Why are cells small?
2. How is the interior of a cell described?
3. What are the two types of cells? What are our cells?
4. What cell type is larger?
5. What do both cell type have?
6. What do prokaryotic cells lack that eukaryotic cells have?
7. Where is the nucleolus located and what happens there?
8. What is inside nucleus?

9 What do ribosomes do?

10. What is the function of the rough endoplasmic reticulum? Role of ribosome and messenger RNA?
11. What is the function of the Golgi apparatus?
12. What is the cytoskeleton? Main components?
13. What is missing on the smooth endoplasmic reticulum?
14. Smooth ER function?
15. What happens if you drink alcohol in excess? Why do you need to drink more to get same affect?
16. What is the function of the mitochondria?
17. Why do mitochondria look like bacteria?
18. What is a term used to describe lysosomes?
19. Fuctions of centrioles?

Trans-Membrane Proteins

1. What in the video passes through a "channel"? This channel is called?
2. What are the three type of transport by integral proteins? Function of each?
3. What forces operate a gated channel?
4. What is significant about active transport?
5. What are the ions and what is the direction of movement of these ions? Active or passive?

Sodium Potassium Pump (2 min)

1. What ions are moved in this pump?
2. Active or passive? Fuel?
3. What is important characteristic of this pump?

Voltage Gated Channels (2 min)

1. What is the status of the sodium channels and potassium channels when the plasma membrane is in its resting potential? (
2. What happens during the action potential of the membrane?

Second Messenger (2 min)

1. What occurs when a signal molecule binds to a surface receptor?
2. What is the function of the G protein?

Endocytosis and Exocytosis (2 min)

1. How do cells move large food particles in the cell?
2. What are the three type of endocytosis?
3. What is exocytosis?

How Glycolysis Works (2 min)

1. How many carbons are in a glucose molecule?
2. What does glycolysis produce?
3. What is the end products of glycolysis?
4. What products are produced when each pyruvate molecule is formed?
5. What happens to pyruvate in anerobic environments?
6. If oxygen is available then what is the pyruvate turned into?

Krebs Cycle Made Easy (5 min)

1. What is oxidized in the Krebs Cycle?
2. What is made by the Krebs Cycle? (
3. Where does the Krebs Cycle occur in animals?
4. How is citrate formed?
5. What is produced by one moleucle of glucose?
6. Where are the reduced coenzymes shipped to?

Electron Transport Chain (5 min)

1. What is the significance of the electron transport chain?
2. Where are the proteins of the electron transport chain located?
3. What is the energy of the reduced NADH used to move into the intermembrane space?
4. Where is a high concentration of protons (H+) created?
5. What happens to the electrons at the end of the electron transport chain?
6. What happens if there is no oxygen?
7. How is ATP made?

Mitochondria (10 min)

1. Do all mitochondria have the same shape?
2. What tissue have the most mitochonria?
3. What happens at the inner membrane?
4. What is the endosymbiosis theory of mitochondria?
5. What was the first mitochondria?
6. Who do we inherit mitochondria from?
7. What else does the mitochondria do which protects us?