



1. Describe the function of the following organelles, and label on the cell:
 - a. Nucleus: the control center, it directs all the activities of the cell
 - b. Cell membrane: gate keeper, allow things in and out of the cell
 - c. Cell wall: (plant cells) adds structure to the plant cell, and provides protection
 - d. Cytoplasm: holds the organelles, place where chemical reactions occur
 - e. Mitochondria: provides the cell with energy; place where cellular respiration takes place
 - f. Chloroplast: makes food for plant cell; place where photosynthesis takes place
 - g. Golgi bodies: sort proteins and packages them into vesicles to move them out of the cell
 - h. Vacuole: storage area for food, water, and waste materials

2. What is the difference between cell, tissue, organ, organ systems and how are they related? Cells are the smallest unit that carries out the functions of life. Tissues are groups of similar cells performing the same function. Organs are groups of different tissues that work together to perform a major function. Organ system are a group of different organs working together to carry out a particular function.

3. What is the building block of life? Cells

4. Explain the difference between prokaryotic and eukaryotic cells. Prokaryotic cells are unicellular, lack a nucleus and membrane bound organelles inside the cell. Eukaryotic cells has a nucleus and have a nucleus and have membrane bound structures inside the cell called organelles (many celled / multicellular).

5. List two examples of prokaryotic and eukaryotic organisms. Prokaryotic-bacteria and amoeba; Eukaryotic-animals, plants, insects, fungi, and reptiles (You could name individual members of these groups in your answer)

6. Explain the difference between producers and consumers (heterotrophs and autotrophs) and list five examples of each. Autotrophs (Producers) make their own food. Heterotrophs (Consumers) do not make their own food. Consumers depend on producers to provide their food.
 - a. Autotrophs (Producers)- plants
 - b. Heterotrophs (Consumers)- animals (owls, porcupine), slime molds, mushrooms.

7. What are the beginning reactants of photosynthesis? Carbon dioxide, water and sunlight
8. What happens during photosynthesis and where does it take place? The sun's energy, water, and carbon dioxide is taken into the cell in the chloroplast, and glucose and oxygen is released. Oxygen leaves the plant and the glucose is used or stored by the cell. The process that plants use to make their food; occurs in the chloroplast;

10. How does photosynthesis benefit heterotrophs? (1) Some heterotrophs eat autotrophs and use the energy in the autotroph's stored food. (2) We get oxygen released through the process of photosynthesis.

11. What happens during respiration, what are the beginning reactants and ending products? Cells break down simple food molecules such as glucose and release the energy they contain. It is carried out continuously. Glucose and Oxygen move into the mitochondria of the cell, and carbon dioxide, water, and energy is released.

12. Respiration begins in the cytoplasm, and the stage of respiration that releases most of the energy in glucose occurs in the mitochondria.

13. The energy-releasing process that does not require oxygen is called fermentation.

14. Explain the difference between alcohol and lactic acid fermentation. Give an example of where these occur and what organisms go through these fermentation processes.

Alcoholic fermentation occurs in yeast (Think BREAD). It is a process that breaks down sugar and produces alcohol and carbon dioxide.

Lactic acid fermentation occurs in the muscle cells when the cells are deprived of oxygen during exercise and lactic acid is produced.

15. Define the different types of cellular transportation (diffusion, osmosis, endocytosis, exocytosis, facilitated diffusion, active transport) and draw one example of each type of transportation.

Diffusion: process by which small molecules move from a high concentration to a low concentration across the cell membrane (PASSIVE)

Osmosis: Is the diffusion of water molecules through a selectively permeable membrane (PASSIVE).

Endocytosis: large molecules are surrounded by the cell membrane and placed into a vesicle to move into the cell (ACTIVE)

Exocytosis: the molecules move in a vesicle to the cell membrane and exit the cell (opposite of endocytosis) (ACTIVE)

Facilitated Diffusion-large molecules enter through a transport protein but do not use energy (PASSIVE)

Active transport: is the movement of materials through a cell membrane using energy.

16. Describe equilibrium. Is where the number of molecules on the outside of the cell is the same as the number of molecules inside the cell



17. Describe what cells need in order to grow and divide. Oxygen, water, nutrients (glucose, food), cells need to maintain homeostasis.

18. Define homeostasis, and explain why it is important in the human body. It is the maintenance of stable internal conditions. It keeps internal conditions just right for cells to function.

19. What is the cell theory? It explains the relationship between cells and living things and states that (1) all living things are composed of cells; (2) Cells are the basic units of structure and function in all living things; (3) all cells are produced from other cells (mitosis and meiosis).

20. List what is produced (what is given off) during respiration. Carbon dioxide and water and energy.

21. The invention of the microscope made it possible to see cells.

22. Name and describe the process that produces new body cells. Mitosis- one cell grows, duplicates its DNA and then divides into two identical daughter cells. These are diploid cells with the same number of chromosomes as the original cell.

23. How many and which type of cells are produced through meiosis.

Meiosis happens in sex cells (egg and sperm) and makes 4 haploid cells. These cells have half of the original number of chromosomes.