

Unit 4 Cells Study Guide

Objective 1:

- Analyze the similarities and differences among (a) plant versus animal cells and (b) eukaryotic versus prokaryotic cells
1. What is a prokaryotic cell?
 2. What groups/types of organisms are prokaryotic cells?
 3. What does a prokaryotic cell look like?
 4. What is a eukaryotic cell?
 5. What groups/types of organisms are eukaryotes?
 6. What are the differences between the two types of cells?
 7. What are the differences between a plant and an animal cell?
 8. Why would plants need to have different structures/organelles?

Objective 2:

- Describe the functions of all major cell organelles, including nucleus, ER, RER, Golgi apparatus, ribosome, mitochondria, microtubules, microfilaments, lysosomes, centrioles, and cell membrane
 - Contrast the structure and function of subcellular components of motility (e.g., cilia, flagella, pseudopodia)
1. What is the function of the nucleus?
 2. What is the function of the rough endoplasmic reticulum?
 3. What is the function of the smooth endoplasmic reticulum?
 4. What is the function of the Golgi apparatus?
 5. What is the function of ribosomes?
 6. What is the function of the mitochondria?
 7. What is the function of the lysosomes?
 8. What is the function of the chloroplast?
 9. What two structures do cells use for movement?

Objective 3:

- Explain how the cell membrane controls movement of substances both into and out of the cell and within the cell
 - Explain how the cell membrane maintains homeostasis
 - Describe and contrast these types of cell transport: osmosis, diffusion, facilitated diffusion, and active transport
1. What does the cell membrane look like? Be able to recognize and label the phospholipids, and both types of proteins.
 2. What is the structure of a phospholipid? Be able to label the head and tail.
 3. What part of the membrane do small uncharged particles diffuse through?
 4. What part of the membrane do large charged particles diffuse through?
 5. What does selectively permeable mean?
 6. What is osmosis?
 7. How does water move across a membrane?
 8. What is a hypotonic solution?
 9. What is a hypertonic solution?
 10. What is simple diffusion?
 11. What is facilitated diffusion?
 12. What is active transport?
 13. Be able to predict the movement of substances based on the type of transport occurring.

Objective 4:

- Describe the basic process of mitosis

1. Why do cells divide?
2. What types of cells divide using mitosis?
3. What is the end result of mitosis?
4. What are the 4 phases of mitosis?
5. What does prophase look like?
6. What does metaphase look like?
7. What does anaphase look like?
8. What happens when a mistake makes it through a checkpoint?