

**ABS Fall Final Study Guide
(50 points)**

Directions: Using the numbered items below, create a study guide on a separate sheet of paper to prepare for the final exam. You will have 2 days in class to complete this. When you are finished, please show your work to Mr. Hartfield and he will check it off so you can take it home to study with. All study guides will be turned in the day of the final for a grade. Your grade will be based on completion.

Name _____

Date _____

FFA History

1. What are the FFA colors and what do they represent?
2. What is the FFA Salute
3. What are the 6 parts of the FFA Emblem and what does each one symbolize?

Scientific Process Method

1. What is the scientific method?
2. List the steps in the scientific process.
3. What is a hypothesis?
4. What is an independent variable?
5. What is a dependent variable?
6. What are controlled variables?

Characteristics of Life

1. Define biology.
2. What is the basic unit of life?
3. What 2 characteristics are common to all cells?
4. What molecule in the cell contains hereditary information (instructions for growth and development)?
5. What are the common traits among living things?

Cells

1. What is a prokaryote? Give an example.
2. What is a eukaryote? Give an example.
3. What are three main differences between prokaryotes and eukaryotes?
4. What is an organelle?
5. In the table on the next page, list the function of each of the organelles.

Organelle	Function
Cell membrane	
Cytoplasm	
Nucleus	
Nucleolus	
Mitochondria	
Ribosomes	
Endoplasmic Reticulum	
Golgi Apparatus	
Lysosomes	
Cytoskeleton	
Cilia	
Cell wall	
Vacuole	
Chloroplast	

6. What organelles are found only in plant cells?
7. Put the following in order: tissues, organ systems, organs, cells, organism
8. Define the parts of the cell theory.

Homeostasis, Cellular Transport, and Solutions

1. Define: hypertonic, hypotonic, isotonic.
2. If there are more solute molecules inside the cell than outside the cell, what type of solution is it?
3. If there are more solute molecules outside the cell than inside the cell, what type of solution is it?
4. If the concentration of solute molecules is the same outside the cell and inside the cell, what type of solution is it?
5. Complete the following table.

Type of solution	Where is solute concentration the highest (inside cell or outside cell)	Will water move in or out of cell?	Will the cell swell, shrink, or stay the same size?
Hypertonic			
Hypotonic			
Isotonic			

6. What is the difference between active transport and passive transport?
7. List and describe the types of passive transport.
8. List and describe the types of active transport.
9. What is the difference between osmosis and diffusion?

DNA/Protein Synthesis

1. Define DNA- what is the role of DNA?
2. What makes up the backbone of the DNA (sides of the ladder)?
3. Who discovered the structure of DNA?
4. Define RNA – Why is RNA important to the production of proteins?
 - a. Compare and contrast RNA to DNA
 - b. Define mRNA
 - c. Define tRNA
 - d. What is an amino acid? How are they attached to the mRNA?
5. What is replication? Transcription? Translation?
6. What is a protein? What is it made of?
7. Understand the production of proteins: DNA → RNA → Protein
8. Replicate a strand of DNA and transcribe that strand of DNA

Mitosis/ Meiosis

1. What is the cell cycle?
2. List the phases of the cell cycle.
3. What is mitosis?
4. List and describe the phases of mitosis in order.
5. Draw a picture that represents each stage of mitosis. (be able to determine the stages of mitosis from a picture)
6. What is meiosis?
7. How many times does the DNA get copied in meiosis?
8. What are diploid cells? Haploid cells? Provide examples.
9. What is “crossing over”, when does it take place
10. Define cytokinesis

Genetics

1. What are genetics?
2. Who is considered to be the “father” of genetics?
3. What is a karyotype?
 - a. What can we learn from it?
 - b. How can we identify gender from it?
4. Define homologous chromosome.
5. Define homozygous and heterozygous. Give an example of each.
6. Define genotype and phenotype. Give an example of each.
7. What is the difference between a dominant trait and a recessive trait?

8. Everyone in Squidward's family has light blue skin, which is the dominant trait. Squidward is heterozygous for his light blue skin. His wife has light green skin.
 - a. Create a punnet square to show the possible genotypes of their children.
 - b. What are the possible genotypes?
 - c. What are the possible phenotypes?
 - d. What are the chances of a child with light blue skin?
 - e. What are the chances of a child with light green skin?

Photosynthesis/ Respiration

1. Define the process of photosynthesis
 - a. What is the chemical formula for photosynthesis?
 - b. What are the requirements/ products?
 - c. Where does it take place in the cell?
 - d. What impacts the rate of photosynthesis?
 - e. Why is photosynthesis important to life?
2. Define the process of respiration
 - a. What is the chemical formula for respiration?
 - b. What are the requirements/ products?
 - c. Where does it take place in the cell?
 - d. What is the order of events in cellular respiration?
 - e. What happens if oxygen is not present?
3. Compare and contrast photosynthesis and respiration