

## Biology: Semester Final Study Guide

\*\* You may bring ONE 3 x 5 index card with notes on it (both sides). Your name MUST be written on the card because it MUST be HANDED IN when you hand in your final. You must also hand in ALL of your old tests. Part of your semester final grade will be based on handing in the old tests. \*\*

On the semester final, you will find the following types of questions:

- Multiple choice
- True/False
- Matching
- Labeling
- Short answers

Most of the questions will come from previous test questions. You should definitely study:

- Past tests
- Notes
- Reread sections from the textbook should you need to refresh your memory
- Homework
- Quizzes

Detailed study guides from each chapter can be found on my website. Below is a concise list of the information from each chapter that is important to know for the semester final.

### **Chapter 1 – The Science of Biology**

- Vocabulary
- Scientific method
- Spontaneous generation
- Redi, Needham, Spallanzani, Pasteur
- Characteristics of living things
- Branches of biology
- Metric system
- Light and electron microscopes
- Laboratory Safety

### **Chapter 2 – The Chemistry of Life**

- Vocabulary
- Atoms, elements, isotopes, compounds, molecules
- Chemical bonds (4)
- Water properties
- Solutions, suspensions, mixtures
- Acids, bases and pH
- Macromolecules
- Carbs, lipids, nucleic acids, proteins
- Chemical reactions
- Activation energy
- Enzymes action (complex included)

### **Chapter 7 – Cell Structure and Function**

- Vocabulary
- Hooke and van Leeuwenhoek
- Cell Theory
- Prokaryotes v. eukaryotes
- Organelles (function, labeling, location, animal v. plant)
- Cell membrane, cell wall
- Diffusion, osmosis, facilitated diffusion, active transport
- Isotonic, hypertonic, hypotonic
- Levels of organization

## **Chapter 8 – Photosynthesis**

- Vocabulary
- Autotrophs v. heterotrophs
- ATP, ADP (structure, purpose, energy storage)
- Photosynthesis equation
- Lights and pigments
- Chloroplast structure
- Electron carriers
- Light-dependent rxn and Calvin cycle (major events, reactants, products, locations)

## **Chapter 9 – Cellular Respiration**

- Vocabulary
- Glycolysis (location, purpose, reactants, products, step in C.R.)
- Cellular respiration equation
- Fermentation (2 types, location, purpose, reactants, products)
- Krebs Cycle, Electron Transport (location, purpose, major events, reactants, products, step in C.R.)
- Cellular respiration v. photosynthesis

## **Chapter 10 – Cell Growth and Division**

- Vocabulary
- Limits to cell growth
- Ratio of surface area to volume
- Chromosome structure
- Cell cycle (interphase, M phase ... including labeling)
- Cancer

## **Chapter 11 – Introduction to Genetics**

- Vocabulary
- Mendel (pea plants, fertilization)
- P, F1, F2 generations
- true-breeding, hybrids
- trait, gene allele
- genotype, phenotype
- homozygous, heterozygous
- Mendel's laws/principles (4)
- Probability
- Punnett squares
- Independent assortment (gamete formation)
- Complete dominance, incomplete dominance, codominance, multiple alleles, polygenic traits
- Meiosis (I and II)
- Homologous, diploid, haploid, N, 2N
- Tetrad, crossing-over (phase it occurs in)
- Gamete formation
- Mitosis v. meiosis

## **Chapter 12 – DNA and RNA**

\*\* You do NOT have to know this chapter for the test since you are taking a test on it on Fri Dec 12, 2008. \*\*