**Biology GT Midterm Exam Review**

**General Information:**

* From the county: 50 MC, 1 BCR
* From me: approximately 10 additional MC and 5 open-ended questions
* All material covered this year is fair game
* Study notes, old tests, old homework, labs, classwork
* Do not wait until the last minute to begin studying.
* After the break, we will spend the first two weeks of January on assignments intended to help summarize and review the material we have covered so far.
* Come back in January with specific questions/topics you would like to review.
* As usual, I will be available to you after school for additional help if you need it. If there is enough interest, I will schedule formal after school review sessions prior to the midterm exam.

**Vocabulary:**

Claim

Evidence

Hypothesis

Theory

Variable (Independent and dependent)

Metric Prefixes (particularly kilo-, centi-, milli-, and micro-)

Atom

Electron

Proton

Neutron

Charge

Ion

Molecule

Compound

Energy

Ionic Bond

Covalent Bond

Hydrogen Bond

Polar

Non-polar

Hydrophobic

Hydrophilic

Solvent

Solute

Organic molecule

Protein

Amino acid

Peptide bond

Dehydration synthesis

Enzyme

Carbohydrate

Starch

Sugar

Monosaccharide

Disaccharide

Glucose

Cellulose

Lipid

Fatty Acid

Phosphate

Phospholipid

Nucleic Acid

DNA

RNA

Nucleotide

Nitrogen base

Genetic Information

Energy

Autotrophs

Heterotrophs

Decomposers

Chemical energy

Free energy

Entropy

Second Law of Thermodynamics

calorie

Activation energy

Biosynthesis

Decomposition

Enzyme

Substrate

Active site

Induced fit

Enzyme-substrate complex

Product (in the context of enzymatic reactions)

Concentration

Nucleus

Diffusion

Mitochondria

Hypotonic

Ribosome

Isotonic

Pseudopodia

Hypertonic

Flagella

Passive transport

Cilia

Active transport

Vacuole

Facilitated diffusion

Chloroplast

Ion Channel

Cytoplasm

Cellulose

Centriole

Hydrophobic

Chlorophyll

Hydrophilic

Cell wall

Phospholipid

Cell membrane

Transmembrane protein

Lysosomes

Cholesterol

Homeostasis

Eukaryote

Positive feedback

Prokaryote

Negative feedback

Endocrine system

Hormone

Insulin

Glucagon

Nervous system

Digestive system

Circulatory system

Respiratory system

Excretory system

Gland

Dynamic equilibrium

ATP/ADP

Reduction

Phosphorylation

Oxidation

Hydrolysis

Excited

NADP+/NADPH

Xylem

NAD+/NADH

Phloem

FAD/FADH2

Stomates

Thylakoid

Glycolysis

Lumen

Krebs Cycle

Stroma

Light reactions

ATP Synthetase

Calvin Cycle

Photosystem

Substrate-level phosphorylation

Electron Transport Chain

Oxidative phosphorylation

Pyruvate

Lactate

Aerobic

Anaerobic

Fermentation

What you need to know/be able to do for the Biology GT Midterm Exam:

* Identify independent and dependent variables
* Use the metric system
* Determine whether a molecule is organic or inorganic
* Know the difference between polar and nonpolar molecules, particularly how they interact with water
* Understand why water is polar and describe the unique properties of water
* The structure and function of the four classes of biological macromolecules—carbohydrates, proteins, lipids, and nucleic acids
* Understand the fundamental importance of structure and function in biology
* Know the function of the vitamins A, B, C, D, and K
* Understand the pH scale and be able to identify acids and bases when given a pH
* Explain what an enzyme is, what it does, and how it works
* Understand the relationship between enzymes, substrates, and products
* Recognize that enzymes work best in specific environmental conditions (temperature, pH, etc)
* Understand diffusion and osmosis, and be able to predict how water and solutes will move across semi-permeable membranes
* Describe the structure of the cell membrane
* Describe the differences between prokaryotic and eukaryotic cells
* Describe the differences between plant cells and animal cells
* Know the cell organelles and their functions
* Know the main function of each body system
* Understand homeostasis, including negative feedback mechanisms
* Know the summary equations for photosynthesis and cellular respiration
* Know the reactants of photosynthesis and the products of photosynthesis
* Know the reactants for cellular respiration and the products
* Understand the difference between aerobic respiration and fermentation
* Recognize the relationship between photosynthesis and cellular respiration

3rd period: Your Biology GT Exam is on Thursday, January 19, 2012.

5th Period: Your Biology GT Exam is on Friday, January 20, 2012.

Study Tips:

* Make yourself a schedule and stick with it. Be specific when you schedule in studying time for yourself—don’t just write, “Study biology.” Instead, write, “Re-take the first biology test without notes” or "Review flashcards for enzymes.” It might be overwhelming to see everything you need to get through laid out in front of you, but having a schedule and following it will help you feel more in control.
* Schedule in “brain breaks” as well. Block out time for Facebook, exercise, family, your friends, internet, TV—whatever helps your mind relax. If you schedule this in it will give you something to look forward to and help prevent you from wasting a lot of time.
* You should aim for twenty minute intervals when you study. Work for about 20 minutes, then give yourself a five minute mental break. It might sound inefficient but it will help you stay productive and focused.
* Try to eat healthy during these next two weeks. Stay hydrated, eat plenty of fruits and vegetables, and avoid junk food. You will feel more energized and your mind will be clearer.
* Sleep is a necessity. Get regular sleep. Teenagers should be getting between 8-10 hours every night. I realize this might seem unrealistic to you in the week leading up to exams, but give yourself 6 hours a night at the very least.
* Prioritize! It is too late to learn a semester’s worth of material for each one of your seven classes. Trying to do that will not be productive. Identify specific topics that you know you need to spend significant time on for each subject and then go from there.
* Don’t wait until the last minute to ask your teachers for help. We are here to help you understand the material, but if you e-mail us late at night during exam week asking for help on an important concept, you will get little sympathy. If you know that you are going to need some extra assistance in the time leading up to exams, let your teachers know ASAP. Having specific questions ready is the most efficient use of your time and your teachers’ time. Do not go to a teacher for extra help or review without having already spent some of your own time looking over the information.
* Studying with friends can be extremely helpful. It can also be a complete waste of time. You know yourself and your friends; if you have friends with whom you can be productive, then schedule in study time together. You can help keep each other on track and help each other with the material. If you have friends with whom you cannot be productive, do yourselves a favor and don’t try to study together.