AP BIOLOGY SUMMER ASSIGNMENT

Welcome to AP Biology for the 2026-2027 School Year!

In preparation for success in this college level science course, all students enrolled in AP Biology are given a Summer Packet to be completed BY HAND (no digital completion) and **brought to the very first day of class!** Be sure to check a biology book out from our library before summer begins. Complete the following tasks:

- Read Chapters 1 & 2
- Complete Biochemistry Review (Tasks 1 - 3)
- Complete Ecology Jump Start
- Go through the AP Biology Survival Guide to get familiar with resources available.
- Have a fun and relaxing Summer break!!!

I look forward to seeing you in August, and also to establishing a strong, successful beginning of your experience in AP Biology here at Mill Valley High School. Have a restful and exciting summer!

Lisa Turney

The Four Main Ideas in AP Biology from AP Central and the College Board:

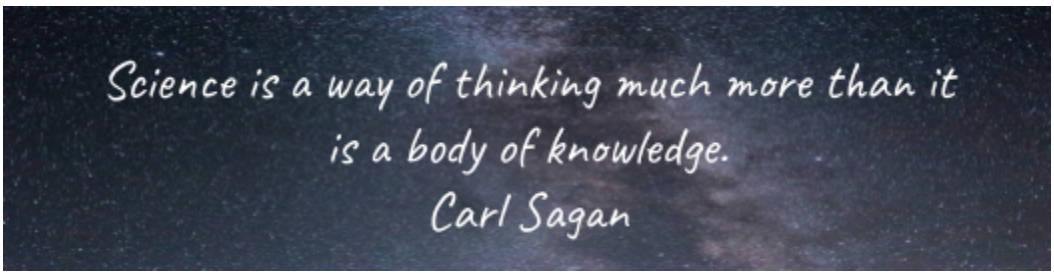
Big Idea 1: The process of evolution drives the diversity & unity of life.

Big Idea 2: Biological systems use energy and molecular building blocks to grow, reproduce, and maintain dynamic homeostasis.

Big Idea 3: Living systems store, retrieve, transmit, and respond to information essential to life processes.

Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

The application of each of these "big ideas" is paramount to understanding Biology at a depth that is at the introductory college level. As such, each one of these ideas is based on a core principle on which science is founded, and thus are found in each and every one of the units we cover in AP Biology. In addition, many of the test items (not only within this class, but also on the national AP Biology Exam) address these ideas. Please familiarize yourself with these concepts as you begin to work through the biochemical & ecology review found in the summer assignment.



AP Biology Summer Packet

Welcome to AP Biology at Mill Valley High School for the 2025-2026 school year! This is a college-level course designed to teach all of the concepts and skills that students would encounter in an Introductory level Biology course at college, and to additionally prepare students for success in taking the AP Biology exam at the culmination of the course. This course is also offered for college credit through Baker University. Due to the nature of the curriculum, the pace is substantially faster than typically experienced in a high school course. In order to begin on a successful path, students are required to complete this packet in preparation for the material to come in this semester. This must be turned into Mrs. Turney on the first day of class. The point value for this work will be 50 points in the daily work category. If it is not completed and turned in until the second day of class, the max point earnings for completion will drop to 25 regardless of 100% accuracy in the work. If completed after the second day of class, no points will be earned.

Upon initial instruction over the concepts in this packet students will be given a quiz over the material in the packet within the first 2 weeks of the course. These concepts should be highly familiar, as Chemistry is a required prerequisite for this course. Thus it is extremely important to come to the first class prepared with a completed handwritten packet. It is highly suggested you check out an AP Biology book from the library to help you complete this packet, but other resources can be used*.

*Do not use AI to complete the packet for you.

Biochemistry (Textbook readings from chapters 1, 2, 3, 4, 5 and **Sections** 8.1, 8.2, 8.4, 8.5.)

Task 1: Define all basic review terms for unit one (listed below):

covalent bond

double bond

electron

electron shell

electronegativity

hydrogen bond

ion

ionic bond

isotope

mass number

hydroxide ion

polar molecule

enantiomer

geometric isomer

hydrocarbon

isomer

organic chemistry

structural isomer

antiparallel (DNA)

chaperonin

hydrolysis

monomer

polymer

saturated fatty acid

unsaturated fatty acid

activation energy

competitive inhibitor

cooperativity

feedback inhibition

free energy of activation

induced fit

metabolism

noncompetitive behavior

phosphorylated

Task 2: On your own sheet of paper, draw an example of the molecular configuration for the following functional groups of organic structures:

Amino group:

Carbonyl group:

Carboxyl group:

Hydroxyl group:

Phosphate group:

Task 3: The four major Organic Groups (Carbohydrates, Lipids, Proteins and Nucleic Acids) are the basic components of the life structures. Answer the following regarding their composition and function:

1. Draw a phospholipid bilayer (as the type that composes cell membranes):

2. Draw the structure of ATP… labeling the 3 basic types of molecular groups.

Ecology Jump Start: Provide a simple illustration that demonstrates levels of organizations and energy flow in an ecosystem.

-Option 1: You may find such a picture on the internet, but you MUST cite your source and provide a 2 paragraph written response explaining your illustration.

-Option 2: Draw your own illustration and incorporate an explanation within your picture.

Textbook readings from chapters 52, 53, 54