

AP Biology - Summer Study Unit

Students entering AP Biology in the fall are expected to have a strong background in biology and chemistry. It is fundamental to success in AP Biology that students review materials prior to the beginning of school. The AP Biology course is framed around 4 Big Ideas, and we will be covering them in great detail over the course of this class.

- **Big Idea 1** – The process of evolution drives the diversity and unity of life.
- **Big Idea 2** – Biological systems utilize energy and molecular building blocks to grow, reproduce, and maintain homeostasis.
- **Big Idea 3** – Living systems retrieve, transmit, and respond to information essential to life processes.
- **Big Idea 4** - Biological systems interact, and these interactions possess complex properties.

All students will be given a test covering the content of this Summer Study Unit within the *first three or four classes* of school in September. This will be “Test 1.” We are providing these materials in advance so that students may use them over the summer to prepare. Performance on Test 1 often predicts success in AP Biology.

This study packet includes a pdf version of a portion of the first edition of the *Principles of Life*. Chapters 1-3 are provided and review concepts from both Chemistry and Biology courses. Students should carefully read these chapters, and for Chapters 2 and 3, answer the questions in the side boxes labelled “Do You Understand Concept.” Students should check their answers to these questions, a key is included in the study packet.

Students will need to complete the attached Graphing and Data Skills packet and bring this to class on Friday of the first week of school (9/7). It will be graded.

Students should choose one of the two primary articles that are included in the summer assignment (by Cuthill and Robinson or by Lutz et al.). Each article reports on a study that has more than one sub-experiment. After reading, students should write an experimental design paragraph (EDP) for *one* of the *sub*-experiments from *their chosen* article. The EDP should include, if applicable, the following items: null and experimental hypotheses, independent variable(s), levels/controls with units, number of trials, dependent variable(s) with units, constants with units/specs, and a statement of statistics used to analyze the data. Also include the relevant results and conclusions in the EDP. Bring this work to class on your first day of AP Biology. It will be graded.

Students should also watch the *seven* Bozeman videos that explain the “AP Biology Practices” (see the link below). These videos briefly cover each of the seven Science Practices included as part of the AP Biology curriculum. Questions on this content will be included on the first test.

Bozeman videos link: (<http://www.bozemanscience.com/ap-biology>)

Students should also read the “Survival Skills” document. It describes skills, practices and perspectives that will help students to succeed in the AP Biology course.

NOTE: While not required or essential, students *may* want to purchase an *inexpensive* used book to further explore content. The Campbell Biology book is very good.

Summer Checklist:

Read:

- Articles (2) - read both and choose 1 for EDP
- Survival skills
- Chapters 1-3 in POL

Watch:

- Seven Bozeman videos on AP Biology Practices
- May watch additional videos relating to chps. 1-3 content:
<http://www.bozemanscience.com/042-biologocal-molecules>
<http://www.bozemanscience.com/048-enyzmes>

Bring to class first day:

- EDP including statement of statistics used, results and conclusion
- Completed Graphing and Data Skills Packet