

SUMMER ASSIGNMENT

The purpose of this summer assignment is to familiarize you with the format of the AP Biology exam and types of questions it contains, and to review some basic biology and chemistry concepts you have studied before. This will allow us a jumpstart on our year and more time to cover the material.

This assignment is designed for you to spend approximately 3 hours a week over a 6 week period on biology work. For some, it may take much less time, depending on one's biology and chemistry background, reading speed, effort in creating notes, etc.

There are due dates for each portion of the assignment. While late work will be understood and accepted as everyone has different summer plans, your future self will thank you if you stick to the scheduled due dates.

AP BIOLOGY

AP Biology Summer Assignment, 2024-2025

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Introductions

We're going to be spending a lot of time together and seeing each other at our best and (perhaps) our worst, so I'd like to give us the chance to get to know one another.

Who am I?

Please watch the *Who am I?* video I have posted to the Google Classroom page. ~20 minutes

- It introduces me to you on both a professional and personal basis, and describes the goals I have for our course this year.

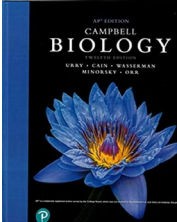
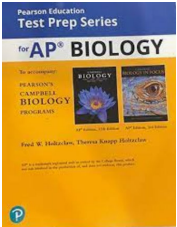
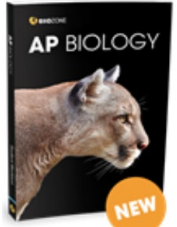
Who are you?

In an effort to get to know you, understand how you learn, and recognize the other things going on in your life, I'd like you to do the following:

1. Make a quick video that represents you ~10 minutes
 - This can be anything you want it to be! I know your video making skills surpass mine. Feel free to include your favorite song, your pet, a photo from your vacation, or anything else that represents you.
 - Make sure you say your name so that I can learn how to pronounce it correctly!
 - Submit it to the assignment on GClassroom.
2. Complete the Getting to Know You survey ~10 minutes
 - This is a Google Form (link posted to the GClassroom).

Textbooks

You will need the following textbooks for the course and to complete your summer assignment. I understand some textbooks may come in late so I will scan the appropriate pages and post those to Google Classroom (I will not be doing this during the school year).

TITLE	ISBN-13	ISBN-10
<p>TEXT <i>(optional)</i>:</p> <p>Campbell Biology AP Edition (12th Edition)</p> 	978-0-13-648687-9	0-13-648687-8
<p>STUDY BOOK:</p> <p>Test Prep Series for AP Biology</p> 	978-0-13-648693-0	0-13-648693-2
<p>STUDY BOOK:</p> <p>Biozone: AP Biology</p> 	978-1988566566	1988566568

The AP Exam

Introduction to the AP Biology Examination

- Read Part I in your Test Prep Series study book (p2-22). ~1 hour
 - This gives you an overview of the course, its Big Ideas, Science Practices, and the suggested inquiry labs. It also breaks down the eight units of content and their weighting on the exam, and describes the exam format with tips from readers (graders). Try to answer the sample questions provided before reading the explanations. This section also explains the grading procedures for the exam and useful test-taking strategies. Lastly, make sure you look at the Task Verbs Used in Free-Response Questions (p21).

Sample Test

You will complete the sample test given the study book. This will help to reinforce what you have read about the exam format, will remind you of some of the material you learned in your freshman biology course (and have likely forgotten), and show you the deductive reasoning skills that are useful when taking the test (sometimes you don't even have to know any biology!). I do not expect you to know how to answer every question; I just ask that you give it a try!

You will need:

- a calculator
- the AP Biology Formula and Equations Sheet (see GClassroom)
- answer sheets (see GClassroom)

AP Biology Formula and Equations Sheet

- This can be found on GClassroom with the Sample Test assignments.
- Please look it over. See what looks familiar and what looks totally foreign.
- Look up any equations with which you are unfamiliar and read about them. Write down some notes on these to which you can refer later.

Section 1 – Multiple-Choice Questions

- Complete Section 1 of the sample test in your Test Prep Series study book (p327-347). ~2 ½ hours
 - Set a timer for 90 minutes and work through the 60 multiple-choice questions.
 - You may use more time but note the amount of time you took.
 - Self-grade your test using the Answers and Explanations section in your study book (p398-404).

Section 2 – Free-Response Questions [OPTIONAL]

- Complete Section 2 of the sample test in your Test Prep Series study book (p348-352). ~2 ½ hours
 - Set a timer for 90 minutes and work through the 6 free-response questions.
 - You may use more time but note the amount of time you took.
 - Self-grade your test using the Answers and Explanations section in your study book (p404-409).

Introduction to the Science Practices

Why?

The AP Biology curriculum emphasizes not just biological content but also the practices by which science is done, including scientific methodology, data analysis, concept visualization, and many more. In fact, if you master these aspects of science, you will be able to answer many questions on the AP exam regardless of your depth of biological knowledge. We will be using these practices throughout the year so they become second nature to you and will start now to get you into the groove.

Science Practices Assignment

You will read about each science practice then complete the associated assignments from the Biozone AP Biology Study Book:

Activity 250 Concept Explanation (p459)

You will practice how to **describe** and **explain** a biological concept using data from a salivary amylase experiment.

Activity 251 Visual Representations (p460)

You will practice how to **describe** and **explain** a biological concept shown in a visual representation.

Activity 252 Questions and Methods (p461-463)

You will practice how to describe various aspects of **scientific investigations**, which will help you in future experimental designs.

Activity 253 Representing and Describing Data (p464-466)

You will practice how to collect and organize **data** and then display it so it shows any possible trends that may be important.

Activity 254 Statistical Tests and Data Analysis (p467-470)

You will practice how to perform **mathematical calculations**, use confidence intervals and/or error bars to determine **statistical significance**, and use data to evaluate a hypothesis.

Activity 255 Argumentation (p471-472)

You will practice how to **make a scientific claim and support it** with evidence and reasoning, explain the relationship between experimental results and larger biological concepts, and **predict the effects of changes** in components of a biological system.

Note-taking

Why?

At this point in your high school career, you may already have a preferred note-taking method, especially if you have completed other AP level courses. In this course, I would like you to keep a notebook of your choosing (composition notebook, spiral notebook, digital, etc.). There will be some items I print to give to you that you will want to keep in this notebook (remember your BILLS?) but you may choose how you take your notes.

There are various ways to organize your notebook. You may include a Table of Contents on the front pages that you update as we move through material; you may use sticky labels to identify different topics, chapters, or units we cover; you may choose to write only on the righthand pages and draw or glue items in on the left.

I will not be checking your notebooks on a regular basis unless I have assigned note-taking as homework, which will likely be a completion grade.

The purpose of this summer note-taking is three-fold:

- 1) To give you the opportunity to find a note-taking method (or two) that you feel comfortable with and allows you to study easily from these later;
- 2) To review material from your freshman biology course so we can get a jumpstart on the year. Please know we will review this material in class to ensure your understanding but it is expected you come in with a base knowledge of the material; and
- 3) To give you practice working with the optional textbook so you may determine whether you would like to purchase a copy of this in hardcopy or digital form.

Different Note-taking Methods

You will try out different methods of note-taking for each chapter of notes. You may choose from the following types:

Structured Note-taking

1) *Guided Question Set*

You are given a list of questions that you answer as you read through the text. These questions highlight the main points of the textbook chapter. These are posted to GClassroom.

Hint: always read these ahead of reading the text so you know for what you are looking.

2) *Textbook Learning Objectives*

You answer the Concept Check questions at the end of each textbook section as your notes.

Hint: always read these ahead of reading the text section so you know for what you are looking.

Self-guided Note-taking

3) *Cornell Notes*

This is a particular note-taking method that divides your page into a thin lefthand column for questions, a wider righthand column for notes, and a bottom row for a brief page summary.

See this [link](#) for further explanation.

4) *Concept Map*

This diagram of notes links keywords or subtopics together with lines or arrows to show how they are related. This is a great visual format to study from but can take longer to create because it involves knowing all of the key parts before creating it (by hand).

See this [link](#) for further explanation.

There are some online programs that allow you to create concept maps, which may be useful because they are easier to alter as you go through the material:

- [creately](#)
- [Lucidchart](#)
- [miro](#)
- [canva](#)

5) *Annolighting*

This is a combination of highlighting and annotating (it's not just for English class!) that pinpoints important information and summarizes it. The highlighting is done directly in the text (cannot be done in rented texts) and the annotations are made on sticky notes that are placed onto the textbook page with the related information. In this manner, you can summarize what you have read but also have the full text available to you if your annotations don't make sense to you later on or you need more examples.

See this [link](#) for further explanation.

Creative Note-taking

6) *Sketchnotes*

Create your own sketchnotes summary page. Many students are visual learners so creating illustrated notes can help you not only figure out if you really understand a concept by trying to decide how to draw it but also a good method for quick review later. Sketchnotes may absolutely include terms and even sentences.

See this [link](#) for further explanation.

7) *Illustrated Flashcards*

Create a deck of 50 flashcards with illustrations and color-coding. This is similar to sketchnotes but allows you to have a front-and-back system that is useful for self-quizzing later.

See this [product](#) for young children as an example. There are even illustrated flashcards on Quizlet.

8) *Diagram and Label*

Create your own labeled sketch of the system or topic and label it with a detailed key. This is often useful when describing the many steps in one process.

See this [link](#) for a basic example.

Summative Note-taking

9) *Summary*

Write a summary of the topic using key terms in context. This is usually done after completing the full reading and is the equivalent of a word form of a concept map. It is often useful to highlight, underline, and color code important terms. This type of note-taking takes a lot of practice to ensure you don't miss out important details. It is best used to gain a big-picture understanding of a reading.

10) *Practice Quiz*

Create a quiz that you and classmates could practice. This could be in GForms, quizlet, Kahoot, or another digital format. The questions must be those you have written; it cannot include published AP questions or questions from practice books or the text. It is important to include both multiple-choice and free-response questions. You must also provide an answer key.

This method of notetaking ensures understanding and helps you envisage what a test might look like.

Note-taking Assignment

- You will read and take notes on the first three chapters in the textbook and turn in photographs showing or links to these notes, or a physical copy of the notes.
- You must choose a different type of note-taking method for each chapter.

Chapter 1: Evolution, the Themes of Biology, and Scientific Inquiry ~3 hours

Textbook p2-26

Chapter 2: The Chemical Context of Life ~3 hours

Textbook p28-43, Biozone Activity 2

Chapter 3: Water and Life ~3 hours

Textbook p 44-55, Biozone Activity 1

Timeline & Checklist

Week 0:	May 25-31	Take a Break!	
Week 1:	June 1-7	Introductions & Sample Test MC Section <ul style="list-style-type: none">• Watch Ms. Sutton’s intro video• Create my own intro video• Answer the Getting to Know You survey questions• Read about the AP Test format• Take the Sample MC Section test• Grade the MC section	☐
Week 2:	June 8-14	Sample Test FRQ Section <ul style="list-style-type: none">• Take the Sample FRQ Section test [OPTIONAL]• Grade the FRQ section [OPTIONAL]• Biozone Activity 250 Concept Explanation• Biozone Activity 251 Visual Representations	☐
Week 3:	June 15-21	Introduction to the Science Practices <ul style="list-style-type: none">• Biozone Activity 252 Questions and Methods• Biozone Activity 253 Representing and Describing Data• Biozone Activity 254 Statistical Tests and Data Analysis• Biozone Activity 255 Argumentation	☐
Week 4:	June 22-28	Notes on Chapter 1 <ul style="list-style-type: none">• Concept 1.1 The study of life reveals unifying themes.• Concept 1.2 Evolution accounts for the unity and diversity of life.• Concept 1.3 In studying nature, scientists form and test hypotheses.• Concept 1.4 Science benefits from a cooperative approach and diverse viewpoints.	☐
Week 5:	June 29-July 5	Take a Break!	

Week 6:	July 6-12	Notes on Chapter 2	□
		<ul style="list-style-type: none"> • Concept 2.1 Matter consists of chemical elements in pure form and in combinations called compounds. • Concept 2.2 An element's properties depend on the structure of its atoms. • Concept 2.3 The formation and function of molecules and ionic compounds depend on chemical bonding between atoms. • Concept 2.4 Chemical reactions make and break chemical bonds. • Biozone Activity 2 The Biochemical Nature of the Cell 	
Week 7:	July 13-19	Notes on Chapter 3 & Applications	□
		<ul style="list-style-type: none"> • Concept 3.1 Polar covalent bonds in water molecules result in hydrogen bonding. • Concept 3.2 Four emergent properties of water contribute to Earth's sustainability for life. • Concept 3.3 Acidic and basic conditions affect living organisms. • Biozone Activity 1 Water in Living Systems 	
Week 8:	July 20-26	Take a Break!	□
Week 9:	July 27-Aug 2	Take a Break!	□