

# **AP Biology Summer Assignment 2020**

Welcome to AP Biology! This is a college level course; it will be rigorous and demand your time and attention in and out of the classroom. Your work for this course will begin during the summer to ensure that everyone starts the class with the same prerequisite knowledge and will include three separate assignments. All three assignments are required and must be turned in on Day 1 in the Fall. Do not wait until the end of the summer to start this assignment. Start early, work a little bit every day, enjoy your summer, and look forward to an exciting year in AP Biology.

## **Assignment 1 –21 Questions & Notes**

The first assignment is based entirely on your textbook. It requires reading certain sections of the textbook and taking notes as well as answering specific questions and will help familiarize you with your text. **Notes MUST be handwritten.\***

## **Assignment 2 – Mastering Biology\***

Use the attached instructions to register for Mastering Biology and complete the summer assignment. The estimated time to complete this assignment is 5 hours. Choose a username and password you will remember. If you lose your login information, email me for login recovery. DO NOT make a new account or re-register for the course.

## **Assignment 3 – Plagiarism Certificate**

Complete the plagiarism tutorial and take the certification test from Indiana University. Save and record your unique test ID number for verification. This should take 1 hour. <https://www.indiana.edu/~academy/firstPrinciples/index.html>

## **Assignment 1 Details**

### **Required text:**

Campbell's Biology in Focus. Check it out from the front office to work on this assignment over the summer.\*

### **General procedures for taking notes on the text:**

1. Read the Key Concepts at the beginning of each chapter. The list of Key Concepts introduces the big ideas covered in the chapter.
2. Leaf through the chapter slowly looking at headings and sub-headings, as well as bolded terms. Look up and define unknown vocabulary terms in your notebook by using the glossary.
3. Look carefully at illustrations and read their captions. The old adage of a picture being worth a thousand words holds true for the Campbell text.
4. Read the chapter. Take notes as you read. Be sure to organize your notes by subtopic and include diagrams.
5. Optional: After each concept, answer Concept Check questions. They are good examples of the kinds of questions that will be on the AP Exam. Check your answers in Appendix A.
6. Optional: Test your understanding of the chapter by completing the Test Your Understanding questions at the end of the chapter. Check your answers in Appendix A.

### **Key terms for answering free response questions:**

Analyze - show relationships between events; explain

Design - create an experiment and convey its ideas

Compare - discuss similarities

Explain - clarify; tell the meaning; use evidence/reasoning

Contrast - discuss points of difference or divergence between two or more things

Predict - tell what you expect to happen when conditions change

Describe - give a detailed account

Justify - explain why a response is reasonable

### **Day 1 Test for AP Biology:**

It is not a placement test. It will cover the concepts in the table on the back of this sheet. You will not be removed from the class if you do poorly, but this will be your first test grade. Be prepared to take the test on the first day of class.

- Read each of the stated sections thoroughly for understanding.
- Take notes per the general procedures listed on the front page
- Answer the questions below.
- *This assignment is due the first day of class and it needs to be done well.*
- **Notes must be done by hand and in your own handwriting. \***

<b>Read and take notes on these sections</b>	<b>Topic</b>	<b>Answer These Specific Prompts in Complete Sentences (<u>in addition to taking notes on the listed sections</u>)</b>
1.1	Themes	1. For each theme, <b>describe</b> an example not provided in the text.
1.2	Evolution	2. Evolution is considered the “unifying theory of biology”. <b>Explain</b> this statement.
1.3	Inquiry	3. <b>Compare</b> and contrast inductive and deductive reasoning. 4. <b>Pose one question</b> that can be addressed by science and one that cannot. 5. <b>Compare and contrast</b> “scientific theory”, “theory” in everyday use, and “hypothesis”.
2.1-2.4	Chemical Bonding	6. <b>Explain</b> how the structure of an atom relates to the properties of the element. 7. <b>Define</b> electronegativity.
2.5	Properties of Water	8. <b>Explain</b> how electronegativity affects interactions between water molecules. 9. <b>Identify</b> the four emergent properties of water that contribute to Earth’s suitability for life. 10. <b>Describe</b> how different types of solutes dissolve in water.
3.2-3.6	Structure and function of biomolecules	11. <b>Describe</b> the fundamental basis for the differences between carbohydrates, proteins, and nucleic acids. 12. <b>Compare</b> the composition, structure, and function of starch and cellulose. <b>Describe</b> the role starch and cellulose play in the human body. 13. <b>Explain</b> why lipids are not considered polymers. 14. Proteins are the most structurally and functionally diverse class of biological molecules. <b>Explain</b> the basis for this diversity. 15. <b>Describe</b> the role complementary base pairing plays in the functions of nucleic acids.
4.2-4.7	Parts of the cell and their functions	16. <b>Draw</b> two eukaryotic cells (one plant and one animal) and one prokaryotic cell, labeling and <b>describing</b> the function of each structure.
6.1-6.5	Biochemical reactions	17. <b>Compare and contrast</b> endergonic and exergonic reactions. 18. <b>Explain</b> the meaning of each component in the equation for the change in free energy of a spontaneous chemical reaction. <b>Explain</b> the importance of spontaneous reactions in the metabolism of a cell. 19. <b>Describe</b> how ATP transfer energy from exergonic to endergonic reactions in the cell. 20. <b>Compare and contrast</b> an exergonic reaction with and without an enzyme.
7.1 & 8.1	Catabolic pathways and redox reactions	21. <b>Explain</b> how photosynthesis and respiration are redox reactions.

Turn in notes and answers to questions on first day of class. **Expect to take a test on this material on the same day.**

\*Students with a handwriting accommodation may type notes and print them.

## **IMPORTANT NOTE FOR SUMMER 2020:**

Due to COVID considerations and uncertainty related to Fall 2020 there are a couple of notes about the following instructions. PLEASE READ these before beginning your Summer Assignment.

1. Textbook access: To reduce the risk of contact exposure, textbooks must remain on campus for a period of time before they may be checked out to students. At this time, the date that physical textbooks may be checked out has not been announced but I expect it to be the week of 6/22. The textbook is available digitally via Mastering Biology.
2. Mastering Biology access note 1: The Mastering Biology course will be open for registration on 6/22/20. Please do not attempt to register prior to this date.
3. Mastering Biology access note 2: Pearson has recently changed their protocols for accessing Mastering Labs and we do not currently have access codes available to register for full access. The provided registration process will give you "temporary" access for 14 days. I expect to have codes for full access available for you by the week of 6/22. **DO NOT PAY FOR ACCESS.**
4. Notetaking assignment: No one knows if we will be on campus in September, or if we are, in what capacity. For now, to be best prepared for any outcome, please complete the summer assignment as if we expect to be on campus but please know that I understand this situation may change.
5. Further questions: I will be checking my email throughout the summer. If have any questions about the course or the summer assignment please do not hesitate to contact me: edanaee@lwsd.org

## **Additional Resources**

You may feel the need to do some additional preparation for AP Biology. Taking an introductory biology course will better prepare you for the depth of content and laboratory research we will be reaching this school year. **I strongly recommend** completing one of the following courses:

1. Khan Academy <https://www.khanacademy.org/science/high-school-biology>

This is a free biology course through Khan Academy. There is no way to gain certification and is best for students who are good at structuring their own study/time. There are a total of 38 lessons not including Ecology or Human Body Systems (not covered in AP Biology).

2. Edx MIT Introduction to Biology <https://www.edx.org/course/introduction-biology-secret-life-mitx-7-00x-5#>!

This is a full-length introduction to Biology course provided for free by MIT. For a fee, you can also receive a certificate showing mastery of the content. This does not cover everything we will learn in AP Biology but addresses many of the more challenging concepts. This is a 16-week instructor-led course that begins July 7<sup>th</sup> and is best for students who perform better with weekly deadlines and a set schedule. Even if you only complete the first half of the course you will be well prepared for AP Biology.

Student Registration Instructions

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**To register for AP Biology:**

1. Go to <https://www.pearson.com/mastering>.
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's course ID: **danaee46396**, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.  
You have an account if you have ever used a MyLab or Mastering product.
  - » If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
  - » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
  - » If available for your course,
    - Buy access using a credit card or PayPal.
    - Get temporary access.
- If you're taking another semester of a course, you skip this step.
7. From the You're Done! page, select **Go To My Courses**.
8. On the My Courses page, select the course name **AP Biology** to start your work.

**To sign in later:**

1. Go to <https://www.pearson.com/mastering>.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select the course name **AP Biology** to start your work.

**To upgrade temporary access to full access:**

1. Go to <https://www.pearson.com/mastering>.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select **Upgrade access for AP Biology**.
5. Enter an access code or buy access with a credit card or PayPal.