# AP Biology Sunlake High School Ms. Pugh

Summer assignment 2026-27

*I know what you are thinking….*

*…..Why a summer assignment?*

AP Biology is a vigorous, yet manageable and rewarding class. In order to meet the demands of the curriculum it is necessary for you to complete some work before you come back in August. Your summer assignment will be based around pre-requisite information that you need a refresher on before coming back. Many of you may be well versed in these topics already so it shouldn't be too difficult.

***WHAT ARE YOU REQUIRED TO DO?***

## Part #1: The 7 Science Practices

The first part of your summer assignment is to familiarize yourself with these seven practices by watching Bozeman Science videos and completing the corresponding video worksheets. Please **print and handwrite** these worksheets and **be ready to turn them in on the first day of class**. It will take you about an hour to watch all seven videos. **Bookmark** http://www.bozemanscience.com/ap-biology/

**Science Practice 1:** The student can use representations and models to communicate scientific phenomena and solve scientific problems.
Video: https://www.youtube.com/watch?v=v5Nemz_cVew
Worksheet: https://tinyurl.com/y95q5ajp

**Science Practice 2:** The student can use mathematics appropriately.
Video: https://www.youtube.com/watch?v=jgqYlSKoXak
Worksheet: https://tinyurl.com/yaqqtqqk

**Science Practice 3:** The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
Video: https://www.youtube.com/watch?v=2zB272Ak63A
Worksheet: https://tinyurl.com/yc2g4qrc

**Science Practice 4:** The student can plan and implement data collection strategies appropriate to a particular scientific question.
Video: https://www.youtube.com/watch?v=AzTXnne40wU
Worksheet: https://tinyurl.com/ybolylz3

**Science Practice 5:** The student can perform data analysis & evaluation of evidence.
Video: https://www.youtube.com/watch?v=0JqukouOtZA
Worksheet: https://tinyurl.com/ybskztts

**Science Practice 6:** The student can work with scientific explanations & theories.
Video: https://www.youtube.com/watch?v=3gK1xWNM7kk
Worksheet: https://tinyurl.com/yaosxsgp

**Science Practice 7:** The student is able to connect and relate knowledge across various scales, concepts and representations in and across domains.
Video: https://www.youtube.com/watch?v=7l4bcs49JP8
Worksheet: https://tinyurl.com/y8q8bxqk

While the emphasis of this course will be on developing the seven skills above, a solid foundation of content knowledge is still necessary in order to be successful. AP Biology is designed to be the equivalent of a two semester introductory college-level course.
As such, the responsibility for mastering the content falls largely on YOU.
We will explore topics you learned in your previous biology classes in much more depth.
The curriculum is centered around four big ideas:

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

**Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to 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.**

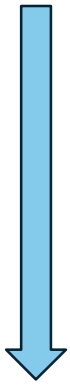
As of 2019 the College Board restructured the curriculum of AP Biology into 8 units:

**Unit 1: Chemistry of Life**
**Unit 2: Cell Structure & Function**
**Unit 3: Cellular Energetics**
**Unit 4: Cell Cycle**
**Unit 5: Heredity**
**Unit 6: Gene Expression & Regulation**
**Unit 7: Natural Selection**
**Unit 8: Ecology**

It is expected that you already have a working knowledge of basic biology from your previous classes.
We do not have the time for me to reteach these basic concepts during the school year.

## Part # 2 Biology Vocabulary Review

Therefore, your second assignment is **review any terms on the list below** that you may have forgotten from last year or perhaps never learned. You may use any Biology textbook (Openstax), notes from previous classes, or the Internet to teach yourself. It is up to you to determine how you will review and how much time you will spend on this assignment. However, it is recommended that you spread your studying out over the summer and review a little bit every couple of days rather than cramming the night before school starts. It is proven that you will retain information better this way. You should **be prepared to take a test** within the **first week of school** on this content. If you are unprepared and score poorly on the quiz, there may not be a retake and you may have additional remediation assignments that you will have to complete.



NOTE: You should have a **general understanding** of each of the following term. Do not stress over details.

1. abiotic
2. active transport
3. adenosine triphosphate (ATP)
4. adhesion
5. allele
6. amino acid
7. analogous structure
8. aquatic
9. artificial selection
10. asexual reproduction
11. biology
12. biomass
13. biome
14. biosphere
15. biotechnology
16. biotic
17. carbohydrate
18. carnivore
17. carrier (transport) proteins
19. catalyst
20. cell
21. cell cycle
22. cellular respiration
23. chlorophyll
24. chloroplast
25. chromosomal mutation
26. chromosomes
27. cladogram
28. co-dominance
29. cohesion
30. community (ecological)
31. competition
32. concentration gradient
33. consumer (ecological)
34. crossing-over
35. cytokinesis
36. decomposer
37. deoxyribonucleic acid (DNA)
38. diffusion
39. DNA mutation
40. DNA replication
41. dominant inheritance
42. ecology
43. ecosystem
44. embryology
45. endocytosis
46. endoplasmic reticulum (ER)
47. endosymbiosis
48. energy pyramid
49. enzyme
50. eukaryote
51. evolution
52. exocytosis
53. exponential growth
54. extinction
55. extracellular
56. facilitated diffusion
57. food chain
58. food web
59. fossils
60. founder effect
61. frame-shift mutation
62. gamete
63. gene
64. gene recombination
65. gene splicing
66. genetic drift
67. genetic engineering
68. genetically modified organism (GMO)
69. genotype
70. Golgi apparatus
71. gradualism
72. habitat
73. herbivore
74. homeostasis
75. homologous structure
76. impermeable
77. incomplete dominance
78. inheritance
79. interphase
80. intracellular
81. isolating mechanisms
82. limiting factor
83. lipids
84. logistic growth
85. macromolecule
86. meiosis
87. migration
88. mitochondrion
89. mitosis
90. monomer
91. monosaccharide
92. multicellular
93. multiple alleles
94. natural selection
95. niche
96. nondisjunction
97. nonnative species
98. nucleic acid
99. nucleotide
100. nucleus
101. omnivore
102. organelle
103. organic molecule
104. organism
105. osmosis
106. passive transport

107. pH
108. phenotype
109. photosynthesis
110. plasma membrane
111. point mutation
112. polarity
113. polygenic
114. polymer
115. population
116. population dynamics
117. predator
118. prey
119. producer (ecological)
120. prokaryote
121. protein
122. protein synthesis
123. protein pumps
124. punctuated equilibrium
125. recessive inheritance
126. recombination
127. restriction enzyme
128. ribosome
129. semi-conservative replication
130. sex-linked trait
131. sexual reproduction
132. speciation
133. species
134. succession
135. transcription
136. translation
137. trophic level
138. unicellular
139. vestigial structure
140. zygote

The AP Biology course is designed to be the equivalent to a college introductory biology course usually taken by biology majors during their first year. AP Biology includes those topics regularly covered in a college biology course for majors and differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required of students. We will spend more time on learning to analyze data, checking for statistical significance of data, discussing data collection and writing conclusions. This will be quite different from the recalling of facts from previous biology class Therefore, the expectations are the same for AP Biology students as college biology majors. There will not be traditional homework assignments. Every activity or assignment we do will not be graded or entered into the gradebook. You are expected to participate in all of the daily activities and complete them in a timely manner.

The level of expectation for this type of course is very high. Only students who are truly committed to high standards of excellence and commitment will succeed in AP Biology. This course is taught in the anticipation of having students take the Advanced Placement Exam in Biology and do well.

You can email me with any questions/concerns that you might have.

I hope you have a GREAT summer!

-Ms. Erika Pugh
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***** Mark your calendar: AP Biology Exam is _TBA_, May 2027 *****