

AP Biology Summer Assignment
Mrs. Burroughs
Easley High School/2018-2019

Welcome to Advanced Placement Biology! I am excited to see that you've made the commitment to study Biology at a high level and at an accelerated pace. I'm looking forward to a great year with you and hope that your experience in this course will be both challenging and rewarding.

AP Biology is a course designed to be the equivalent of a two-semester, introductory biology course taken during a college student's freshman year. This course will require dedication and self-motivation throughout the school year. The summer assignment that follows is crucial and must be completed on time. **None of this assignment will be accepted late.** It is a major test grade for Q1, and you are expected to complete this work **independently and on time.** Please follow the directions carefully so that you will receive full credit for this assignment. Failure to follow the directions below will result in a deduction of points from your final grade on this assignment, based on the point distribution on the rubric.

Through the course, you will become familiar with major recurring ideas that persist throughout all topics and material.

| THE 4 BIG IDEAS OF AP BIOLOGY |
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| 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. |

Part One – Letter of Introduction

This is due by midnight on Wednesday, August 1, 2018.

We are going to spend a lot of time together next year, so I'd like to get a head start on learning a bit about you. Also, we will use the Internet, Schoology, and email a lot in this class, so I wanted to get you used to communicating with me electronically.

The first part of the summer assignment is to compose an email to me using the following rules:

- Use clearly written, full sentences. Do not abbreviate words or use "texting" lingo or Emojis. This is a professional communication like you will have to use with a college professor, so practice using a format that should reflect your professional persona.
- Address it to the appropriate teacher: janburroughs@pickens.k12.sc.us
- Make the **subject: AP Bio Introduction to <Insert your name>**
- Begin the email with a **formal salutation** such as **Mrs. Burroughs** or **Dear Mrs. Burroughs**
- Now introduce yourself and tell me a little bit about yourself, including the following;
 1. **What do you like to do? (hobbies, sports, music, interests, etc)**
 2. **Do you have a job? If so, where do you work and how much do you work during the**

- school year?
3. Tell me a little bit about your family. (Mom, Dad, siblings, pets) What do your parents do for a living?
 4. What did you like about Biology I?
 5. Why are you taking AP Biology and what do you hope to get from the course?
 6. What are you most anxious about as you begin this course?
 7. What are your plans for post-high school? (What colleges/universities are you considering applying for and what do you think your major will be?)
 8. End the email with a **formal closing** such as “Sincerely”, “Yours Truly”, or “Cordially” and add your name as if you signed a letter using a cursive font.

Part Two - AP BIOLOGY SCAVENGER HUNT

For this part of the assignment, you will be familiarizing yourself with science terms that we will be using at different points throughout the year. The list of terms starts on the next page. You will be completing other similar assignments with the entire word list over the course of the year.

- Carefully follow the directions below.
- Remember that this entire summer assignment counts as a major grade and will not be accepted late. This portion of the assignment will be saved on a flashdrive and brought to class on the first day of school. It is due at the beginning of class and will be considered late if it is not turned in then. **DO NOT EMAIL THIS PART OF THE SUMMER ASSIGNMENT TO ME. I WILL COLLECT YOUR FLASHDRIVES AND STORE YOUR WORK ON MY LAPTOP.**

Directions:

- Select **twenty (20)** terms from the attached list. Try to choose terms that you have never heard of before or know very little about.
- For each term, “collect” an item that represents the term and take a **digital photo** of that item. You MUST include a small piece of paper that has your name on it in EVERY picture. You do not necessarily have to find the exact items on the list. For example, if the term is an internal structure of an organism, you will apply the term to the specimen you find and explain in the presentation how this specimen represents the term.
- Produce a powerpoint presentation that will have one slide/term and be sure to include the following:
 - a. **Title slide (AP Biology Scavenger Hunt, Your Name, Date Completed)**
 - b. **One slide per term which includes the term, a picture that you took to represent the term, a definition of the term and an explanation of how this specimen represents the term. If you need TWO slides to accomplish this, that’s fine.**
 - c. **Works cited slide with ALL sources cited in MLA format (YOU MUST HAVE A MINIMUM OF 6 SOURCES.)**

Examples:

1. If you choose the term “phloem,” you could submit a photo that you have taken of a plant leaf or a plant stem, and then explain what phloem is and specifically where phloem is located in your specimen.
2. If you choose the term “cellulose,” you could submit a photo you have taken of an ear of corn and then explain what cellulose has to do with corn and where cellulose is located in your specimen.
3. If you choose the term “ethylene,” you could submit a photo you have taken of ripe bananas and then explain why you’ve chosen bananas to represent ethylene and what the role of ethylene is in ripening fruit.

(By the way, you may use the terms listed above, but must have a different specimen.)

NO organisms should be harmed in the process of taking your photos!
Be sure to return any living organisms back to their environment after you have used them for the assignment.

- **Use original photos ONLY:** You cannot use an image from any publication or the Web. You must have taken the photograph yourself (or be present when it is taken).
The best way to prove the originality of the photo and your presence is to place a small piece of paper with your name on it in all of your photographs. This must be in ALL of twenty photos.
- **Use natural items ONLY:** All specimens must be from something that you have found in nature. Take a walk around your yard or neighborhood and see what’s out there that you can use.
- **DO NOT SPEND ANY MONEY!** Research what the term means and in what organisms it can be found ... and then go out and find what you need.
- **Remember that this work is done independently, and your project should not include the same twenty terms as someone else. There are 115 terms available, so choose the ones that you are interested in and want to learn more about.**

AP BIOLOGY SCAVENGER HUNT TERMS

1. abscisic acid
2. adaptation of an animal
3. adaptation of a plant
4. actin & myosin
5. adhesion of water
6. aggregate fruit
7. amniotic egg
8. anabolic
9. analogous structures
10. angiosperm
11. annelid
12. anther & filament of stamen
13. apical growth
14. arachnid
15. arthropod
16. Archaeobacteria
17. autotroph
18. auxin producing area of a plant
19. basidiomycete
20. biological magnification
21. bryophyte
22. C4 plant
23. Calvin cycle
24. carbohydrate
25. cambium
26. catabolic
27. cellulose
28. chitin
29. climax community
30. cnidarian
31. coelomate
32. cohesion of water
33. conifer leaf modification
34. commensalism
35. connective tissue
59. gibberellins
60. glycogen
61. gymnosperms
62. haploid chromosome number
63. heartwood
64. hermaphrodite
65. homologous structures
66. K-strategist
67. keratin
68. kingdoms of classification
69. larval stage of an insect
70. leaf- gymnosperm
71. Lepidoptera
72. lichen
73. lignin
74. light reactions
75. littoral zone organism
76. long-day plant
77. meristem
78. mimicry
79. modified leaf of a plant
80. modified root of a plant
81. modified stem of a plant
82. monocot plant with flower and leaf
83. mutualism
84. mycelium
85. mycorrhizae
86. nematode
87. niche
88. nymph stage of an insect
89. parasite
90. parenchyma cells
91. phloem
92. pine cone – female
93. pioneer species

36. cuticle layer of a plant
37. deciduous leaf
38. decomposition
39. denaturation
40. deuterostome
41. dicot plant with flower and leaf
42. diploid chromosome number
43. Echinoderm
44. ectothermic
45. endosperm
46. endotherm
47. enzyme
48. epithelial tissue
49. ethylene
50. eukaryote
51. exoskeleton
52. fermentation
53. flower ovary
54. frond
55. fruit – dry with seed vs. fleshy with seed
56. gametophyte
57. gastropod
58. genetically modified organism (GMO)
94. plasmolysis
95. Platyhelminthes
96. pollen
97. pollinator
98. Porifera
99. prokaryote
100. protostome
101. r-strategist
102. radial symmetry
103. rhizome
104. scale from an animal with a two-chambered heart
105. spore
106. sporophyte
107. stem – herbaceous vs. woody
108. stigma & style of carpel
109. stomata
110. succession
111. tendril of a plant
112. transpiration
113. vascular plant tissue
114. xerophyte
115. xylem

Part Three – Video Notes

This part of the assignment is due on the second day of class at the beginning of the period. Remember that we meet every day because you are earning both a lecture and a lab credit for this course.

Watch the videos listed below and take **hand-written** notes on each of them. The notes should be your original work. EACH note sheet will be scored 0 to 5 based on completeness and thoroughness as shown in the rubric below. **Note that pages will not be accepted late nor will they be accepted typed. Research has shown that hand written notes are more beneficial than typed. You will be taking hand written notes throughout the year on each chapter in your textbook and allowed to use those notes on your reading quizzes, but only if they are in your handwriting.**

| # | Video Content | Links |
|---|--|---|
| 1 | The Nature of Science | https://youtu.be/77TFiYWPxoQ |
| 2 | The Scientific Method | https://youtu.be/SMGRe824kak |
| 3 | CER (Claim-Evidence-Reasoning) | https://youtu.be/5KKsLuRPsvU |
| 4 | AP Biology Science Practice 1 Models and Representations | https://youtu.be/v5Nemz_cVew |
| 5 | AP Biology Science Practice 2 Using Mathematics Appropriately | https://www.youtube.com/watch?v=jgqYlSKoXak&t=438s |

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| 6 | AP Biology Science Practice 3 Formulate Questions | https://youtu.be/2zB272Ak63A |
| 7 | AP Biology Science Practice 4 Data Collection Strategies | https://www.youtube.com/watch?v=AzTXnne40wU |
| 8 | AP Biology Science Practice 5 Analyze Data and Evaluate Evidence | https://youtu.be/0JqukouOtZA |
| 9 | AP Biology Science Practice 6 Scientific Explanations and Theories | https://youtu.be/3gK1xWNM7kk |
| 10 | AP Biology Science Practice 7 Connecting Knowledge | https://www.youtube.com/watch?v=7l4bcs49JP8 |

| 0 | 2 | 3-4 | 5 |
|--------------------------------|---|---|--|
| No Credit | Below expectations | Complete | Exceeds expectations |
| No notes OR copied from a peer | Several criteria are missing from entry | All criteria are met, but there's room for improvement within criteria OR one criterion is missing from entry | All criteria listed below are met or have been exceeded for each entry |

What does work that “exceeds expectation” have?

- ✓ Each video’s notes are on a different page.
- ✓ The video’s title is written as it appears in the video on the top line of the paper.
- ✓ The notes are legibly written.
- ✓ Highlighting or colors are used to emphasize key points, new vocabulary, and/or important concepts.
- ✓ Examples are documented in some way when given in the video.
- ✓ Pictures, charts, or graphs are used to display details provided in the video.
- ✓ A summary of the video content is provided at the end of the notes. Please emphasize the summary in some way (title it, highlight it, etc.)

Notes are to be ORIGINAL work and not to be copied from a peer – these serve as a log of what you have learned from the video. Copying them from a peer and not watching the video does you no good. You will receive zero credit if you are found submitting work that is too closely aligned with a classmate’s work.

We will be reading Survival of the Sickest: The Surprising Connections between Disease and Longevity by Sharon Moalem and Jonathan Price (Harper Collins, 2008) this year. You need to purchase a copy of this book over the summer. Poor Richard's Bookstore in Easley has some on hand and students receive a discount.

One last thing....go ahead and get your textbook and refresh your knowledge of the basic introductory material of the first three chapters listed below.

1. Evolution and the Foundation of Biology
2. The Chemical Context of Life
3. Carbon and the Molecular Diversity of Life

The chapters on biochemistry will be considered review from Biology I and Chemistry I, so be prepared to only spend a brief period of time reviewing that material in class. You will take a major test on these chapters during the early part of the first quarter.

If you have any questions about this assignment, contact me through my school email. I'll see you in August. I'll be in room 144, and I'm looking forward to sharing this adventure with you. I LOVE Biology, and hope you do, too. Enjoy your summer.

Mrs. Burroughs