

SCHS Advanced Placement Biology

2020-2021 Summer Assignment

Welcome to AP Biology! We have a lot of information to cover this coming year and to get started you will be preparing for the ecology unit on your own this summer. It is imperative that you watch the videos **for understanding**.

In addition to your textbook, I would recommend that you either purchase or check out from me the **Princeton Review AP Biology** book. You can find this book used on amazon.com for a reasonable price.

Summer Assignment:

Your summer assignment consists of 2 parts:

1. Watch and take notes on a series of Ecology videos in your AP Bio Spiral Notebook.
2. Complete the AP Biology Bucket List!

Part 1: Ecology Practicing Biology Videos

1. Log onto <http://www.bozemanscience.com/ap-biology/>. Scroll down to “Big Idea 4: Systems.” Complete the video review activities listed below for videos #046, #047, and #050, #51, and #055 under Big Idea 4. EACH VIDEO SHOULD HAVE A DEDICATED PAGE (Front & Back Handwritten NOT Typed). Every video must have a summary key concepts AND related illustrative examples in your own words. Support your understanding with diagrams when appropriate. (Concept maps, graphs and other figures should be drawn into the notes page)
 - a. Watch Bozeman Video #046: *Communities*
 - b. Watch Bozeman Video #047: *Ecosystems*
 - c. Watch Bozeman Video #050: *Populations*
 - d. Watch Bozeman Video #051: *Ecosystem Changes*
 - e. Watch Bozeman Video #055: *Biodiversity*

Connection to curriculum: Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

Part 2: AP Biology Bucket List

Complete the task listed and provide the appropriate documentation (indicated in parentheses). You must complete **12** of the following options, documented as listed. For every additional **four** that you complete and document successfully, you will earn one bonus point on your first test, not to exceed +5 points.

Bring all items to class on day 1 and follow these directions:

- Photos of you! ORGANIZED in a type of poster (prefer digital like Canva as I would like to have them printed)
 - **include the # (from list below) of the item on the photo/piece of evidence.** Can't wait to hear about your adventures as you will be presenting on day 1!
1. Enjoy a campfire. (photo)
 2. Make a model of a macromolecule (ex: protein, carbohydrates, lipid, or nucleic acid). (bring model on day 1)
 3. Watch crash course biochemistry videos. (at least 1 page of notes)
 4. Make popsicles from edible plants and enjoy. (photo)
 5. Decorate cookies or cupcakes in a science theme (ex: organelles, petri dishes, macromolecules, etc.) and bring to class to share. (bring food on day 1)
 6. Can or jar jams, jellies, or pickles. (photos and a jar to share on day 1)
 7. Get environmentally friendly utensils and use at least 10 times (10 photos in collage)
 8. Go to the Renaissance Festival and eat a giant turkey leg. (photo)
 9. Recycle 10 items of styrofoam at Publix. (photo)
 10. Get a pet fish and keep it alive ALL summer. (dated photos in collage)
 11. Find bioluminescent algae on the shore. (photo)
 12. For one week, try to recycle more by making your recycle bin outweigh your trash. (photo & scale)
 13. Safely SAVE A stranded animal! (selfie with animal)
 14. Adopt a pet that doesn't have a home (photo & adoption certificate)
 15. Eat an ice cream cone with at least 4 scoops of ice cream. (photo)
 16. Go scuba diving, snorkeling, sailing, parasailing, or stand up paddleboarding. (photo)
 17. Visit Providence Canyon State Park. (photo in the canyon)
 18. Watch the movie, The Immortal Life of Henrietta Lacks. (have a conversation with me about your favorite scene)
 19. Combine art and science in a creative way (ex: photo, painting, movie, song) and bring to class on day one. (art item)
 20. Go camping overnight in a TENT. (photo)
 21. Visit Wild Animal Safari in Pine Mountain, GA. (brochure & selfie with an animal)
 22. Meet a STEM professional (not related to you☺). (photo & one paragraph biography that includes their educational background)
 23. Visit a technical college. (photo & promotional materials)
 24. Grow a plant from a seed. (living plant brought to class on day 1, 5 pictures chronicling growth)
 25. Go to two state parks, national parks, or national forests and take a walk. (photos AND maps)
 26. Go see the Bodies Exhibit at Atlantic Station. (photo AND stub)
 27. Go to the Fernbank Museum or any science museum. (photo AND stub)
 28. Go to Line Creek Nature Area and walk barefoot in the water. (photo)
 29. Go to a water-based amusement park. (photo AND stub)
 30. Go to 2 different beaches. Collect sand from each in separate containers. (jars of sand AND photos)
 31. Collect a cicada molt. (molt)
 32. Relax in a hammock outdoors. (picture)
 33. Find a living wild turkey, deer, armadillo, rabbit, opossum, or hawk somewhere in PTC. (photo of animal AND photo of you standing where the animal was)
 34. Read more than one book that is not required for any other class. (list, photos, AND 3 sentence summaries. We will check with your other teachers.)
 35. Go to Zoo Atlanta dressed as your favorite animal and visit the matching animal. (stub AND photo)

36. Make your own clothing. (wear it to school on the first day)
37. Press leaves from three species of tree in your neighborhood. (leaves & genus/species of each)
38. Hold a wild frog with your bare hands. (photo)
39. Go to any aquarium and touch an animal. (ticket stub AND photo)
40. Go on a hike and find the highest elevation on the trail. (photo of you at highest elevation)
41. Start a compost pile and show decomposition over the course of 8 weeks. (8 photos)
42. Go fishing and take a photo with what you catch! (photo)
43. Go to Callaway Gardens and go to the bird of prey show. (photo AND stub)
44. Go to PTC Farmer's Market and meet one of the vendors. (photo of you AND vendor)
45. Go canoeing/kayaking/boating in any body of water. (photo)
46. Make art (jewelry, etc.) out of collected snail shells. (wear on day 1)
47. Listen to any WNYC RadioLab about any topic. (write a paragraph summary)
48. Make a mud slip 'n slide. (photo)
49. Run a race (at least 5K). (race bib AND photo)
50. Volunteer at local Humane Society or animal shelter. (photo)
51. Tour the CDC Museum in Atlanta. (pamphlet AND photo)
52. Find and identify 4 different snails (seashells) from the beach. (shells AND page with ID information)
53. Hike a mile on the Appalachian Trail. (photo at milemarkers and/or blazes)
54. Visit Jekyll Island Sea Turtle Center. (pamphlet AND photo)
55. Learn how to play a song on a NEW instrument. (play song on first day of class)
56. Find a living organism in a pond water sample. (photo)
57. Hike up Stone Mountain. (1 photo on the way to the top AND 1 photo at top)
58. Find (do not buy) a fossil and identify the organism. (photo of you and fossil)
59. Go tubing on any river. (photo)
60. Carefully climb the steps to the top of Amicalola Falls (don't drive to the top) (photo)
61. Feed a spider in its web. (photo with you in it)
62. Photograph and identify at least 2 different roadkilled organisms. (photo)
63. Give your pet a bath. (photo)
64. Watch a video of *Ascaris* worms while eating Ramen noodles. (photo)
65. Find and identify two invasive species in Fayette county. (photo & name of species)
66. Find a CAM plant. (photo)
67. Write a short story about yourself. (short story)
68. Straddle a state line. (photo)
69. Eat an edible insect. (photo)
70. Go play in the water fountains in Centennial Olympic Park. (photo)
71. Go swimming in a lake. (photo)
72. Raise a tadpole into a frog. (5 photos over time)
73. Go biking. (photo)
74. Get up for a sunrise in 2 different places. (photos)
75. Hunt for fossilized shark's teeth. (photo & tooth)
76. Find a horseshoe crab molt. (molt)
77. Paint or sketch a self portrait. (artwork)
78. Milk a cow/goat. (photo)
79. Find a snake shed/molt. (shed/molt)
80. Make a earthworm compost farm/small container. (bring to class on day 1)
81. Meditate for 30 minutes in a peaceful place. (timelapse video uploaded to Bb assignment)
82. Visit a former Sisk AP Bio student at their college. (selfie)
83. Document a roadtrip. (selfies @ 3 different destinations)
84. Visit The Ridge Nature Area in Fayetteville find a box turtle nest cage. (selfie with cage)
85. Visit 180 Degree local organic farm and talk to an owner. (selfie with employee)
86. Go to Disneyworld and take a tour with Kilimanjaro Safaris (photo)
87. Visit Busch Gardens. (selfie with butterfly)
88. Visit MiniMart on Huddleston Rd and drink bubble tea. (selfie)
89. Volunteer or make a donation at an animal rescue center. (photo)
90. Visit Historic Banning Mills and go to the raptor show. (photo)
91. Press 5 wildflowers and identify. (pressed flowers)
92. Take pictures of dolphins (photo)
93. Become an expert on a biology topic and give a less than ~1 minute presentation on the first day of school.
94. Create a fake (appropriate) biology promposal (photo)
95. Have a mud fight! (photo)
96. Make an ecosphere that includes 2 types of plants and 1 type of animal. (bring on day 1)
97. Take a picture with a pair of identical twins. (photo)
98. Get 3 flattened souvenir (crank machines) pennies from 3 different places. (pennies)

99. Find a wheat penny. (penny to show)
100. Develop a solution to the world helium shortage. (written explanation)
101. Enter a project into any science fair competition (i.e. google science fair). (entry materials/certificate/photo)
102. Design a lab to test one characteristic of bubble gum. (poster or written lab design that includes all important lab components)
103. Conduct your designed gum lab. (photo & lab report)
104. Visit a bat colony at sunset (many in TX). (video with self uploaded to Bb Assignment)
105. Make a sand sculpture at the beach. (i.e. sandcastle, turn yourself into a mermaid) (photo)
106. Narrate a nature scene modeling David Attenborough or Steve Irwin (video uploaded to Bb assignment)
107. Grow vegetables and make a dish to eat. (bring a sample on day 1)
108. Pick up litter from a nature area. (photo)
109. Act out an interpretive dance of photosynthesis in public. (video uploaded to Bb assignment)
110. Make a cell model in Minecraft. (screenshot)
111. Filter water using a safe method (iodine, UV filter, etc.) (photo)
112. Safely rescue a turtle crossing the road (make sure you move them in the direction they were moving) (photo)
113. Pet one domesticated animal AND one tame animal (photo)
114. Remix a song using a biology topic (video uploaded to bb)
115. Write a one-page summary explaining your stance on vaccinations (file uploaded to Bb, or print and bring in day 1)
116. Make a biology related board or card game. (bring to class)
117. Participate in a protest or march for a science related issue (i.e. global climate change, vaccinations, etc). (photo)
118. Create biology related artwork to hang in Mrs. Lloyd's room. (bring on day 1)
119. Raise awareness on your social media about a science related issue. (screenshot)

ORIGINAL PHOTOS ONLY:

You cannot use an image from any publication or the Web. You must be in the photographs yourself. The best way to prove that is to **place an item in all of your photographs that only you could have added each time**, something that you might usually have on you like a pen or a coin or a key or your cell phone, etc.

Connection to the College Board AP Biology curriculum:

Essential knowledge 2.D.1: All biological systems from cells and organisms to populations, communities and ecosystems are affected by complex biotic and abiotic interactions involving exchange of matter and free energy.

Essential knowledge 2.E.3: Timing and coordination of behavior are regulated by various mechanisms and are important in natural selection.

Essential knowledge 3.E.1: Individuals can act on information and communicate it to others.

Essential knowledge 4.A.5: Communities are composed of populations of organisms that interact in complex ways.

Essential knowledge 4.A.6: Interactions among living systems and with their environment result in the movement of matter and energy.

Essential knowledge 4.B.1: Interactions between molecules affect their structure and function.

Essential knowledge 4.B.2: Cooperative interactions within organisms promote efficiency in the use of energy and matter.

Essential knowledge 4.B.3: Interactions between and within populations influence patterns of species distribution and abundance.

Essential knowledge 4.C.4: The diversity of species within an ecosystem may influence the stability of the ecosystem.

Have a great summer and feel free to email me at lloyd.jill@mail.fcboe.org to ask questions about the summer assignment. See you soon!

*Portions of summer assignment adapted from Kim Foglia's Explore Biology Webpage and David Knuffke and Stephanie Sisk.