

AP Biology
Summer Assignment 2010

Welcome to AP Biology!

Because AP Biology requires students to cover a tremendous amount of content during the school year, most AP Biology classes use summer to get a “head start” by assigning summer projects/reading assignment. This year, your summer assignment consists of 2 reading assignments. The first reading assignment will cover the last 5 chapters in Campbell & Reece’s *Biology* textbook. Unfortunately, we do not have enough books to check out to everyone—so this assignment will require some determination and resourcefulness on your part. You are to read and study the material assigned carefully. My suggestion is that you do NOT leave this until the last week in the summer to complete!

Assignment #1: Purchase or borrow (it is available at the Mid-continent library—but there are limited copies) “The Cartoon Guide to the Environment”—and then read it. It is a painless way to review Ecology (lots easier than reading 150 pages in Campbell/Reece—our AP Bio textbook!) As you read, you are to complete the attached set of questions, being sure you understand the answers. You can expect a test over this material within the first 2 weeks of school. I will answer questions over any of the material you do not understand when we get back—but you need to write those questions down so you will remember them. This is not a collaborative assignment! This assignment is due on the 20th of August. To complete this assignment, you will need to access the textbook website at www.pearsonschool.com/access and then follow the instructions to register for student access to **Campbell Biology 7e AP Edition**. You will need a student access code, use either ~~SSNA5T-BANJO-MELIC-BAJAN-TUBBY-ESEBO~~ or ~~SSNA5T-SETUP-MELIC-BAJAN-WERSH-GALES~~. Either one of these codes should work. “The Cartoon Guide” is good for most of the questions on the worksheet—for the others, click on the “e-book” link and go to the appropriate chapter.

Assignment #2: Read one of the books listed below. Most can be checked out of the Mid-continent library—although they are also available for purchase at local bookstores and online. Write a 2 page summary (double spaced) of the book you have chosen. This is to be your own work—not something cut/pasted from an online source. The summary is due on the first day of class.

If you have questions, you are welcome to either e-mail me. My e-mail is jbrailsford@bssd.net Be sure to leave either an e-mail address or a telephone number where you can be reached. I have several trips planned during the summer, but will get to you as soon as possible.

DO THIS ASSIGNMENT EARLY! That way you can enjoy the rest of the summer!

Recommended Books:

The Beak of the Finch by Jonathan Weiner

Time, Love, Memory by Jonathan Weiner

Silent Spring by Rachel Carson

The Double Helix: A Personal Account... by James Watson (Be sure you read Watson's book!)

**AP Biology
Cartoon Guide to the Environment
Study Guide**

Cartoon Guide to the Environment

1. Compare and contrast consumers/producers. (You may do this in words or with a diagram—just cover both comparing and contrasting.)
2. List below the essential macro/micronutrients required for life.

Macronutrients	Micronutrients

3. Draw a simple diagram (not from the book) of the 3 “big” biogeochemical cycles below:
 - a. nitrogen
 - b. carbon
 - c. phosphorus
4. There is a short discussion of the effect of environment on speciation. Define briefly the following terms:
 - a. allopatric speciation
 - b. sympatric speciation
5. Define the following terms:
 - a. population
 - b. biotic potential
 - c. environmental resistance

- d. abiotic factors
 - e. biotic factors
6. What are the characteristics of an *r*-strategist?
 7. A *K*-strategist?
 8. Why is coevolution important in species survival?
 9. Explain how genetic diversity, species diversity and ecological diversity are related to each other.
 10. What is gross primary productivity?
 11. What is net primary productivity? What does it measure? How is it figured?
 12. What are phytoplankton?
Zooplankton?
 13. What is a primary producer?
 14. What is the difference between a eutrophic and an oligotrophic body of water?
How would you classify Lake Jacomo?
 15. Why are wetlands important?
 16. What is a biome?
 17. List below 3 characteristics for each major biome listed:
 - a. Tundra
 - b. Taiga
 - c. Deciduous Forest
 - d. Grassland
 - e. Desert
 - f. Tropical Rainforest
 - g. Tropical Grassland
 18. What is the difference between primary and secondary succession in an ecosystem?

19. What is the relationship between species diversity and ecological stability?
20. Trophic (eating) relationships are defined by “who eats who” in an ecosystem. What is always at the lowest trophic level?
21. What is the difference between a food chain and a food web?
22. What happens to the solar energy that drives photosynthesis?
23. What is chemosynthesis?
24. How much of the solar energy absorbed by plants is actually converted to biomass?
25. After reading p. 71, what is the “Rule of 10’s”?
26. Define each of the following:
 - a. autotroph
 - b. heterotroph
 - c. primary consumer
 - d. secondary consumer
 - e. tertiary consumer
 - f. quaternary consumer
 - g. omnivore
 - h. carnivore
26. What types of organisms are decomposers?
27. What is a habitat? (You will have to look this one up, it isn’t in the Cartoon Guide!)
28. How is a niche different from a habitat?
29. When niches overlap, organisms must compete for the same limited resources. What does the competitive exclusion principle tell us will happen?
30. How does resource partitioning (p. 75) affect competitive exclusion?
31. What is symbiosis?
32. How do the following forms of symbiosis differ?
 - a. commensalism
 - b. mutualism

C. parasitism

33. Is predation a kind of symbiosis? Why or why not?
34. Populations undergoing an exponential rate of growth are characterized by:
35. What is a “J-shaped” curve? What does it illustrate?
36. What is “carrying capacity”?
37. What is an “S-shaped” curve? What does it illustrate?
38. What is a keystone species?
39. What happens to an ecosystem if a keystone species is eliminated?
40. What is the difference between an endangered and a threatened species?

You may skip Chapter 11 and 12. Read Chapter 13!

41. Explain how DDT destroyed pelican and eagle eggs.
42. What causes acid rain?
43. What problems does acid rain cause when it hits the ground?
44. Why doesn't it cause these problems in the Midwest? (This isn't in the book! Think about the bedrock under Blue Springs—and how it would react with acid.)
45. What causes ozone depletion?
46. What is the greenhouse effect?
47. What are greenhouse gases?

Animal Behavior (from the e-book on the website—Chapter 51)

48. What is the difference between innate and learned behavior?
49. What is the relationship between behavior and Darwinian fitness?
07. What is the relationship between a fixed action pattern and a sign stimulus?
51. So, what is the nature/nurture controversy?

52. How does maturation impact behavior?
53. Define habituation.
54. What is imprinting?
Imprinting stimulus?
55. Define the following:
a. associative learning
b. classical conditioning
c. operant conditioning
56. Define:
a. kinesis
b. Taxis (NOT a Cab!)
57. What is sociobiology?
58. Briefly describe each of the terms below:
a. agnostic behavior
b. dominance hierarchy
c. territoriality
d. courtship
59. What is parental investment?
What does it have to do with mating systems?
60. In behavioral terms, what is communication?
61. What do each of the following have to do with animal communication?
a. signals
b. pheromones
c. altruism