

AP Biology Summer Assignment
Dr. Pate
Summer 2009

The summer reading assignments have 2 purposes. First, the AP Biology curriculum is extensive and intensive. Your summer work will allow us to proceed at a more reasonable pace throughout the year.

Second, ecological concepts form a basis for many of the curriculum topics. Having a firm foundation in ecology will be beneficial to you as we proceed through the rest of the curriculum.

Assignment #1: Read and study chapters 50 - 55. You will need to use the online version of the book. Register at <http://www.phschool.com/access/> 2. Click on Covered Title, then click on your title from the list 3. Choose Student Registration 4. Click I Accept at the bottom of the License Agreement page 5. Access Information –

- * Enter or Create your username & password
- * Enter the appropriate access code below:

Student: SSNAST-SETUP-UPEND-KANZU-POTTO-RISES

6. Account Information – complete or verify your name & school information 7. Confirmation & Summary – list of websites where you can now login

Assignment #2: Find a current event article for each of the above chapters (5 articles total). Hand in a copy of the articles along with the following analysis:

1. 2 paragraph summary of the article.
2. 2 paragraph explanation of how the article relates to the chosen chapter and what ecological principles are described, discussed or demonstrated by the article.

Bind these articles together in chapter order with a cover page that has your name on it.

Assignment #3: One of the 5 attached AP Biology essays will appear on your first test. That test will be given within the first 2 weeks of the school year. You should be prepared to answer any of the questions fully. You are not required to hand anything in about these essays at this point.

I highly recommend purchasing an AP Biology review guide, such as Barron's, from your local bookstore.

Good luck, have a great summer and I look forward to exploring Biology with you next year!
If you have any questions, please email me at barrowl@martin.k12.fl.us.

AP Biology Essays
Ecology

1) To survive, organisms must be capable of avoiding, and/or defending against, various types of environmental threats. Respond to the following:

a) Describe how adaptive coloration, mimicry, or behavior function as animal defenses against predation. Include two examples in your answer.

2) A scientist working with *Bursatella leacfui*, a sea slug that lives in an intertidal habitat in the coastal waters of Puerto Rico, gathered the following information about the distribution of the sea slugs within a ten-meter square plot over a 10-day period.

DISTRIBUTION OF SLUGS WITHIN A TEN-METER SQUARE PLOT

Time of day	Average distance between individuals (cm)
Midnight	8
4 AM	8.9
8 AM	44.8
Noon	174
4 PM	350.5
8 PM	60.5
Midnight	8

For the data above, provide information on each of the following.

- Summarize the pattern.

- Identify THREE physiological or environmental variables that could cause the slugs to vary *their* distance from each other.

- Explain how *the* variable could bring about the observed pattern of distribution.

Choose ONE of the variables that you identified and design a controlled experiment to test your hypothetical explanation. Describe results that would support or refute your hypothesis.

3) Living organisms play an important role in the recycling of many elements within an ecosystem.

Discuss how various types of organisms and their biochemical reactions contribute to the recycling of either carbon or nitrogen in an ecosystem. Include in your answer one way in which human activity has an impact on the nutrient cycle you have chosen.

4) Photosynthesis and cellular respiration recycle oxygen in ecosystems. Respond to **TWO (and only two)** of the following:

a. Explain how the metabolic processes of cellular respiration and photosynthesis recycle oxygen.

b. Discuss the structural adaptations that function in oxygen exchange between each of the following, organism and its environment: a plant; an insect; a fish.

c. Trace a molecule of O₂ from the environment to a muscle cell in a vertebrate of your choice.

5) Regulation is an important aspect of all biological processes.

For **Both** of the following processes, **describe** the specific role of the regulator and **discuss** how the process will be altered if the regulation is disrupted.

Process	Regulator
Prey Population Dynamics	Predators
Ecological succession	Fire