

AP Biology Summer Assignment 2021

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Welcome to AP Biology! This class that focuses on use of knowledge from eight units in higher level critical thinking applications. We will discuss the expectations of the course in more detail when classes begin in August but first, I have a few items for you to complete prior to the first day of school. The purpose of this is to get you familiar with some terminology, review and practice basic graphing and data skills, and make sure you have the materials you need for class. I am restructuring this activity which is inspired by several colleagues in the AP biology community to make it fun. :). It is summer, after all.

Task 1: Gathering required materials

1. 3-ring binder (at least 1") with loose-leaf college-ruled paper
2. 1 set of tab dividers. The sections will be Notes/Vocabulary, Classwork/Homework, Test/Quizzes, Articles/Supplemental Materials. These can be headed and arranged in any order you like, but you need to keep your materials organized in these categories. This will be valuable as you prepare for the AP test.
3. Blue or black pens. AP Biology FRQs (free response questions) are only scored if they are written in blue or black ink.
4. Highlighters. Any color, these will be used as we practice scoring.
5. Colored pencils or pens that will not bleed through paper for sketch notes.
6. Non-programmable, 4-function calculator. This is required for the AP exam.
7. Graph paper. I suggest a few loose leaf pages punched and kept in your binder.

Suggested materials

1. A test prep manual. There are many available. Choose a recent copy as the 2019-20 academic year involved a restructuring of the class and the curriculum. If you go to [amazon.com](https://www.amazon.com) and type AP Biology 2020 several options will pop up.
2. Index cards for terms.
3. A ruler for graphs. You will make all graphs by hand.

Task 2: Terminology Hunt

This is due on the first day we have class, even if it is a half day of school. It will be submitted to google classroom. You are going to become familiar with terms that will be used throughout the year. Instead of completing a vocabulary list, however, you are going to find a representative of 25 items of your choice from this list and take a selfie with the item. You will compile the pictures with an **explanation** of what the photo represents into a Google Slides document. **The list of terms will be at the end of this document.**

A. The pictures do not have to show a specific example, though for some items that may be easier. For example, if you chose the term glucose (not on the list), you may take a picture of a plant and your explanation would state that the plant is transferring energy to glucose by the process of photosynthesis. Or a picture of roots and indicate this is where glucose is stored. Your explanation must be in complete sentences.

B. ALL items must be found in nature. You may not draw a picture or use a picture from any other source. Go outside. **Do not spend any money!** You can find everything you need for free.

C. Each person is to turn in his or her own project. You may work together to find the items. You may use the same item for more than one person. But each person is expected to turn in a project with his/her photos and explanations put into his or her own words, no exceptions!

D. This is a 50 point classwork assignment. One point for each photograph, one point for each explanation or description. No work will be accepted late.

Task 3: Graphing and Data Skills Practice

Answer the following on paper using blue or black ink. You will turn this in at our first class, even if it is a half day. This will be your first **quiz grade** for the quarter. All answers are to be written in complete sentences. **No** credit will be provided otherwise. Point values are listed by the question. **This will not be accepted late.**

1. You are designing an experiment to test the effects of atropine on the heart rate of male vs female rats. What are the disadvantages of having a sample that is too small (testing on too few individuals)? What are the disadvantages of having too large of a sample? (4 points)
2. For the experiment described above provide a **null hypothesis**. Make sure this is written correctly. (2 points).
3. Use the graph below to answer the following:
 - A. The graph is missing an appropriate title. Provide one. (1 point)
 - B. This graph includes error bars. There is definite overlap between the error bars in Species B upon exposure to nitrogen and exposure to phosphorus. Explain what this means. (2 points)
 - C. Stating evidence from the graph (always!), provide a conclusion for this study in complete sentences (always). Be explicit, never use "it". (4 points)
 - D. N= 50 lakes refers to the population tested. The percent increase compared to the control is represented on the Y-axis.
 1. Is this the dependent or independent variable? (1 point)
 2. Describe the control in this experiment. Do not define control. (1 point)
 - E. A cause of the changing percentage of algae in the ponds is often attributed to a process called eutrophication. EXPLAIN what this is and if the data reflects this process. (4 points)

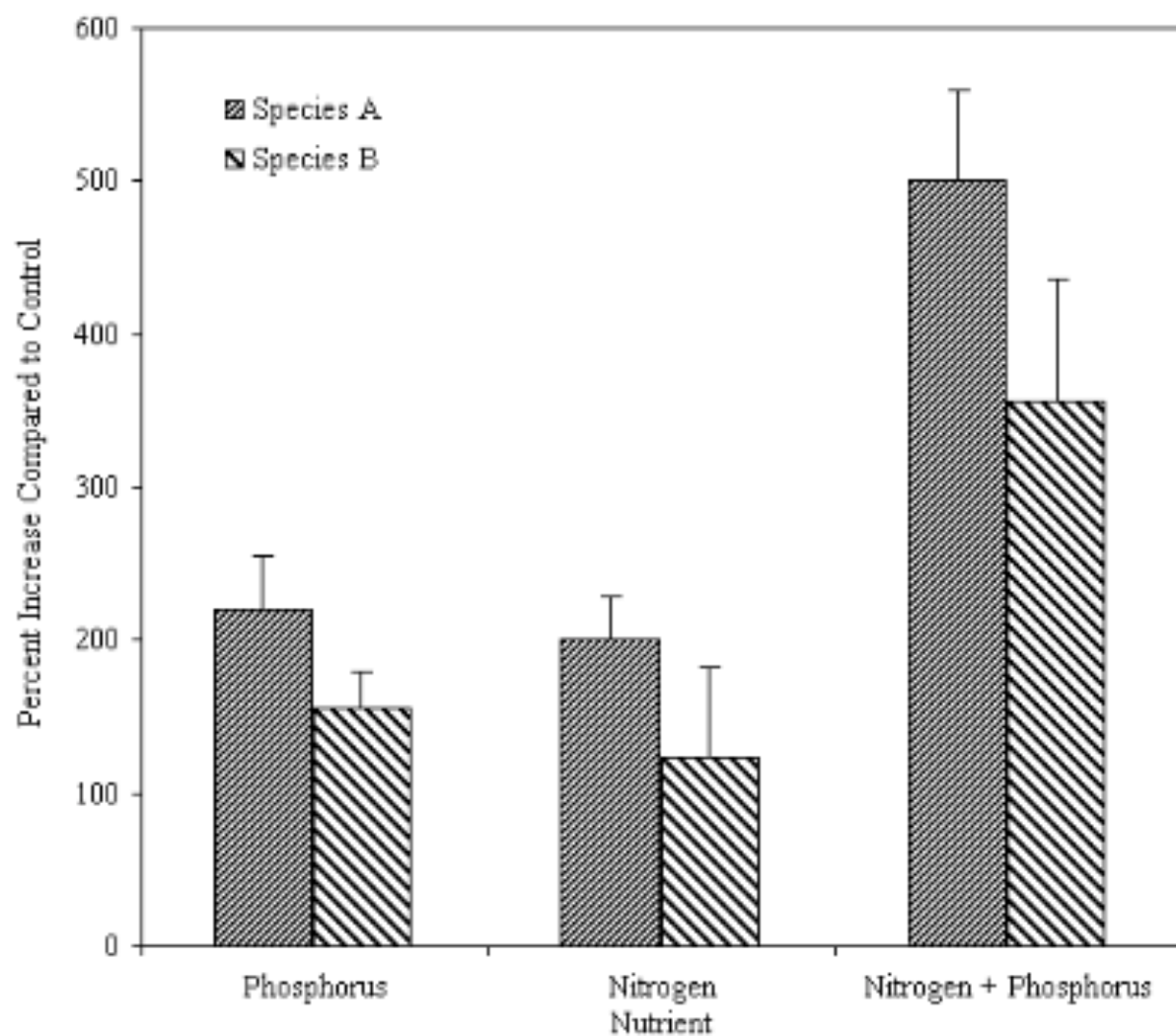


Figure 3. Responses of lake algae to addition of nutrients. Error bars are 95% confidence limits. N = 50 lakes.

Terminology List (Choose 25)

Gibberellins	adaptation of a plant	abscisic acid	Glycogen	Adaptation of an animal
Gymnosperm	actin and myosin	Hermaphrodite	Aggregate fruit	adhesion of water
amniotic egg	homologous structures	K-strategist	Anabolism	Keratin
analogous structures	Angiosperm	example of each member of the kingdoms (except archaeobacteria)	larval stage of an insect	Annelid
apical growth	Lignin	Littoral zone organism	auxin producing part of a plant	C4 plant
Mimicry	Basidiomycete	biological magnification	modified leaf, root, or stem	Monocot plant with flower and leaf
mutualism	Cellulose	Chitin	Climax community	Parasite
Nymph stage of an insect	cohesion of water	Coelomate	niche	Pioneer species
radial symmetry	r-strategist	plasmolysis	Dicot plant with flower and leaf	Enzyme
Endosperm	Scale from an animal with a two chambered heart	Succession (primary or secondary)	fermentation	fruit- dry with seed and fleshy with seed
a genetically modified organism	transpiration	protein, lipid, and a carbohydrate	Mycorrhizae	Commensalism
heartwood	stomata	lepidoptera	Denaturation	Catabolism
Deuterostome	Polyploidy	Pollen	Artificial selection	rock strata
Migration	concentration gradient	Necrosis	mutation	Recessive phenotype
endergonic reaction	food chain	Saprophyte	Keystone species	nitrogen cycle

Reminders:

Task 2- Submit to google classroom on the first Friday of school.

Task 3- Turn in a handwritten assignment on loose-leaf paper by the first Friday of school.

Email me if you have ANY questions!

