

John Jay High School

AP Biology

Summer 2019

Dear Future AP Biology Students:

Welcome to AP Biology! It is hard to imagine that the school year is coming to a close and it is time to think about the 2019-20 school year. Hopefully we will have a long summer filled with summer fun: beaches, hikes, parades and carnivals, movies, Kubk, badminton, BBQs and fire-pits with s'mores. I am looking forward to some field work in the Adirondacks and on the Hudson River. AP Biology is such a great course. The college board has made a few updates to the curriculum that keep the course more aligned with a first-year college biology course. To get ready there is a summer assignment designed to get you reading, thinking, questioning and observing. It won't take too long to complete, it is interesting and gets you outdoors for a bit...

The course is focused on **4 Big Ideas**:

1. **Evolution:** The Process of evolution drives the diversity and unity of life.
2. **Energetics:** Biological Systems use energy and molecular building blocks to grow, reproduce, and maintain dynamic homeostasis.
3. **Information Storage and Transmission:** Living systems store, retrieve, transmit, and respond to information essential to life processes.
4. **Systems Interactions:** Biological systems interact, and these systems and their interactions exhibit complex properties.

And, the following **6 Science Practices**

1. **Concept Explanation:** Explain biological concepts, processes, and models presented in written format
2. **Visual Representations:** Analyze visual representations of biological concepts and processes
3. **Questions and Methods:** Determine scientific questions and methods.
4. **Representing and Describing Data:** Represent and describe data.
5. **Statistical Tests and Data Analysis:** Perform statistical tests and mathematical calculations to analyze and interpret data.
6. **Argumentation:** Develop and justify scientific arguments using evidence.

The assignment will be posted on the school website, and also posted on the calendar and in the feed of the AP Biology home page on echalk-available to you after June 15.

Contact Ms. Lipinsky at alipinsky@klschools.org if you have questions or need assistance.

Please bring the completed summer assignment and the items listed below with you on the first day of school-even if there are shortened periods. The assignment is tightly connected to our first unit of study and it counts towards your first quarter grade (part of class participation grade-but we will discuss grading in detail when school starts).

Have a great summer!

Sincerely,

Ms. Lipinsky

p.s. On the first day bring:

- completed summer assignment (complete the checklist at end of document)
- loose leaf binder-for notes, printouts, an handouts
- composition note book for labwork (must be a **bound composition notebook**--no spirals)
- pens/pencils
- empty, clear plastic bottle-1L size or smaller
- optional/but extra credit- mud sample-2-3 cups of mud collected from a lake/pond

AP Biology

Summer Assignment

1. Read and annotate the articles listed at the bottom of this page. This work is due on the first day of school, even if it is just a shortened day. For each article, include 3 questions about the article that connect to one of the Big Ideas and/or one or more of the science practices listed in the letter to you.

Here are the directions for annotating:

- a) Gather your supplies. Annotation requires the use of highlighters as well as pens and pencils. Utilize a small pencil case to store all your annotating supplies. Sticky bookmarks and post it notes are also helpful to have on hand, although they are not necessary.
- b) Read the first paragraph in the article or assignment and pick out the main idea. What sentence effectively sums up what the passage is saying? Underline or highlight it. Do this for the entire page.
- c) Read over the highlighted main ideas and write a short summary of them in the margins. Use a pencil or a pen, and turn the book sideways to get more margin space for taking notes.
- d) Pick out other important ideas in the passage such as recurring words, phrases or themes. Identify important scientific/biological terms and define them in the margins. Circle the main word or phrase the page in that article discusses. This will help you identify what the main concepts are when skimming the passage for review for a test or exam.
- e) Continue with the remaining assignment pages. You have just learned how to annotate!

Tips:

- Use different pen colors or highlighters for specific purposes.
- Box an important passage or underline with a wavy line to make another one stand out.
- Study notes and underlined portions for test and exam preparation
- Do not overburden the page with so many notes that it becomes difficult to read or study from. Pick out only main ideas.
- <https://biologycorner.com/worksheets/annotate.html> if you need more support!

Articles: you can access through the library media center by logging in from home, or access pdfs from the AP Biology echalk home page.

Angier, Natalie. "Frances Arnold Turns Microbes Into Living Factories." *The New York Times*, 28 May 2019, <https://www.nytimes.com/2019/05/28/science/frances-arnold-caltech-evolution.html>.

Martin, Ronald. "Tiny Plants That Once Ruled the Seas." *Scientific American*, June 2013, pp. 40-45.

Zalasiewicz, Jan. "What Mark Will We Leave on the Planet?" *Scientific American*, Sept. 2016, pp. 31-37.

**Scientific American Articles are available on school library page-go to articles/databases—Science—and then find the link for Scientific American.

2. Building your Observation Skills-keep a field/observation journal

Keep an Observation Journal and make 3 entries. This work can be done on unlined paper you keep in a folder, or a small journal with unlined paper. You may make observations at any of the following locations: backyard, park, lake or pond, river, beach, town, in city, zoo.... One entry must be on an animal and another on a plant-you have lots of flexibility-anywhere you are observing nature is a good choice. Observe in three different settings (for example-front lawn and back woods are both in your yard, but are two different settings). Record observations of nature by sketching/drawing, photographing and writing. Label and record everything you see. Make inferences, include conjectures, thoughts, and questions. Spend a minimum of 20 minutes for making each of the three observation entries. Follow these guidelines:

- one sheet of paper MINIMUM (you can do more) per entry
- you can record your observations on separate sheets of paper, or if inspired, get a small notebook with unlined pages.
- include the date, the location, the time of day, and the weather
- Include a sketch or several sketches, may support with photos taken by you
- include information about texture, color, shape, patterns,
- include counts of organism, estimated sizes, or measured sizes
- write descriptions of what you see
- make inferences, include conjectures, thoughts, and questions,
- support inferences made with facts/observations/concrete evidence
- when observing an animal consider
 - the size and shape of the animal's body
 - observations about the animal's body surface, including color, and how that might relate to its environment
 - what it eats
 - how it moves
 - how it relates to other animals
 - how it relates to anything else in its environment
 - how it feels-if you are brave enough to touch/pick up
- for more information, read this: <http://cemarin.ucanr.edu/files/220523.pdf>

3. Think about what you want to learn in AP Biology. It could be skills, content, or both-but list the top three things/topics/ideas/concepts you want to learn about in AP Biology for the coming year. Write then down on a sheet of paper with your name, date, class period written in the top right-hand corner. These will be shared in a class PowerPoint-which will be set up later in the summer.

4. Take a selfie or photo from a favorite summer experience that has a connection to biology/of you being a biologist (you can share more than one photo!). This should be a photo you are willing to share with the class and school. Yes, I will bring one in too! Before school starts, I will share a link to the class PowerPoint where you can share the photo.

Have a great summer! I am looking forward to working with each of you in September.

Best,

Ms. Lipinsky

**AP Biology
Summer Assignment**

Name _____

Date _____

Directions: Print and complete this check-list to turn in with your summer assignment.

AP Biology Summer Assignment Completion Check-list

Assignment Component	✓/Date Completed
1 a. Annotated article Angier, Natalie. "Frances Arnold Turns Microbes Into Living Factories." <i>The New York Times</i> , 28 May 2019, https://www.nytimes.com/2019/05/28/science/frances-arnold-caltech-evolution.html	
1b. 3 questions for article Frances Arnold Turns Microbes Into Living Factories	
1c. Annotated article Martin, Ronald. "Tiny Plants That Once Ruled the Seas." <i>Scientific American</i> , June 2013, pp. 40-45.	
1d. 3 questions for article Tiny Plants That Once Ruled the Seas	
1e. Annotated article Zalasiewicz, Jan. "What Mark Will We Leave on the Planet?" <i>Scientific American</i> , Sept. 2016, pp. 31–37.	
1f. 3 questions for article "What Mark Will We Leave on the Planet?"	
2a. Field/Observation journal entry 1	
2b. Field/Observation journal entry 2	
2c. Field/Observation journal entry 3	
3. List of top 3 topics/concepts to learn about in AP Biology	
4. Photo(s) take and uploaded to ppt (available in August)	
Binder for notes, handouts	
Composition book to use for lab notebook	
Clear Plastic bottle-1L or smaller (not tiny round water bottles)	
Optional-2-3 cups of mud freshly collected from local pond/lake/stream	