AP Biology **Summer Assignment**

North Salem University

MISSION: *Engage students to continuously learn, question, define and solve problems through critical and creative thinking.*

Summer 2021

Welcome to **North Salem University**!!!

This summer assignment has been designed for the following purposes:

1. to keep your mind sharp during those summer months, because I will expect a lot out of it come September!
2. to reinforce that reading, especially reading about science can be FUN!!!
3. to introduce you to a new method of learning that we will be using next year in AP Biology.
4. to have you earn some strong grades to help you begin your first semester at college with confidence.

If you have any problems or questions – please feel free to email me at: dcollea@northsalemschools.org.

The College Board

AP BIOLOGY SUMMER ASSIGNMENT - 2021

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ASSIGNMENT #1 - LETTER OF INTRODUCTION (Due Date 7/9/2021)

We are going to spend a lot of time together next year, so it's best if I get a head start on learning a bit more about you. Also, we will use the Internet a lot next year for this course, so let's get you used to communicating with me via e-mail. Now that I have your contact information, your second digital assignment is to successfully send me via e-mail a letter about yourself.

Your Letter of Introduction must abide by the following rules:

1. Use clearly written, **full sentences**. Do not abbreviate words like you are texting with a friend. Use **spell check**! This is a professional communication like you would have with a college professor, so let's practice for your rapidly nearing future!
2. Address it to me, Mr. Collea at: ***dcollea@northsalemschools.org***
3. Make the **Subject**: "AP Bio: Letter of Introduction"
4. Begin the e-mail with a **formal salutation**, like "Mr. Collea," or "Dear Mr. Collea,"
5. Now introduce yourself (your name) and tell me a little bit about yourself, like:
   * Why have you chosen to take a challenging class like AP Biology?
   * What are you looking forward to the most in AP Biology?
   * What are you most anxious about in AP Biology?
   * Was there anything that you liked about your earlier biology class?
   * What do your future college plans entail?
   * What do you like to do in what little free you will have next year (hobbies, sports, music, interests, etc.)?
   * Do you have a job?
   * Tell me a little bit about your family (Grand Parents? Mom? Dad? Guardian? Siblings? Pets?)
   * What do your parents do for a living?
   * What was the last book you read for fun?
   * End the e-mail with a **formal closing**: "Cordially", "Sincerely", "Warm regards", etc. and add your name as if you signed a letter.

ASSIGNMENT #2 – Enroll in my Google Classroom (Due Date 7/9/2021)

1. Enroll in my AP Biology 2021 Google Classroom using the class code: **3ibnmjt**

ASSIGNMENT #3 – TEXT BOOK CHAPTERS 1 – 5

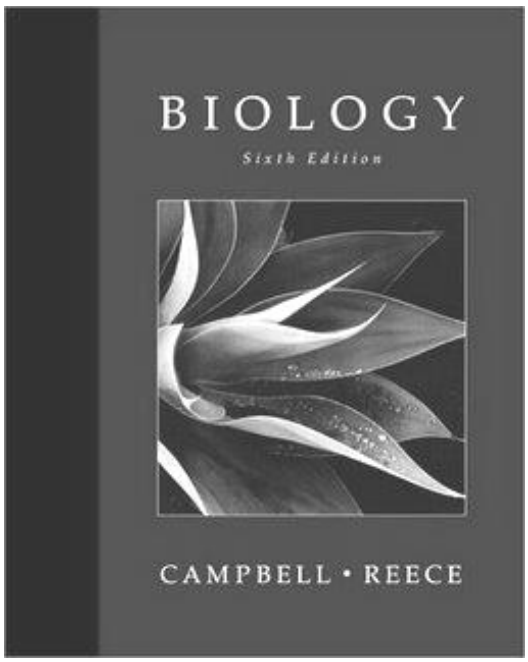
(Due 1st Day of School)

1. Read Chapters 1- 5 in your Textbook along with the relating chapter(s) from Bill Bryson's book, ***A Short History of Nearly Everything*.**
2. Complete the attached Interactive Learning Guides and multiple choice questions for textbook chapters 1-5. Google Forms for each chapter MC will be posted on Google Classroom. Complete the Bill Bryson questions associated for each chapter. You do **NOT** have to be write or type the answers to the Bill Bryson questions, you can simply highlight the answers in the chapters. Feel free to write yourself notes in the margins and be prepared to discuss your answers in class.
3. Check out the AP Biology Home Page along with the Summer Assignment / Biochemistry page on my website for assistance and extra copies of this assignment.

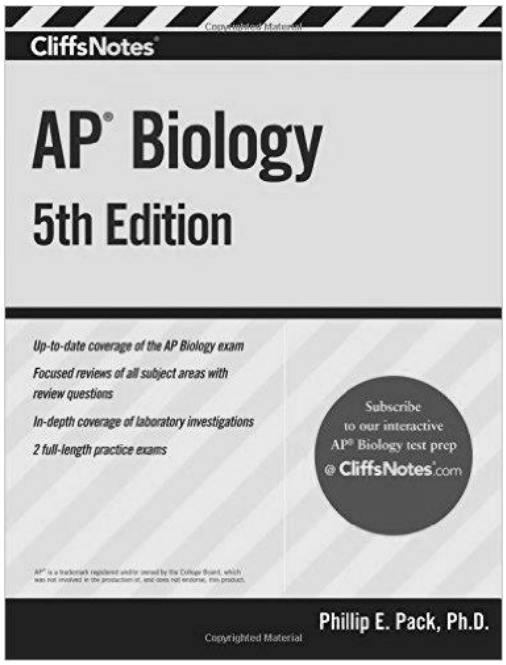
http://colleascorner.weebly.com

ASSIGNMENT #4 – CLASS MATERIALS (Due 1st Day of School)

1. 3-ring class notebook (2 inch MINIMUM) for Interactive Learning Guides and other handouts.
2. Purchase an AP Biology Review book of your choice (*many former students really like the Cliff's AP Biology Review book*) **and bring it with you to the first day of school.**
3. Purchase a used version of our Textbook:
   Biology (*6th Edition*) by Neil A Campbell and Jane B. Reece ISBN # 0-8053-6624-5 **and bring it with you to the first day of school.** I don't think any are available on Amazon but you will find some on Alibris.



Textbook



Review Book

There are many used versions of our textbook for sale on the internet for less than $5.00 - just be sure to get the Campbell / Reece 6th edition)

ASSIGNMENT #5 – Possible Free Response Questions

You will see one or more of these FRQ/Essay questions on your first AP Biology exam which will take place the second week of school. On the day of the exam, Mr. Collea will come in and pick a number(s) out of the Boston Red Sox helmet - the number(s) chosen will be the free response question(s) written for that exam so plan accordingly.

"If you fail to plan…plan to fail."

1. The unique properties of water make life on Earth possible. Select four properties of water and for each property:

a) **identify** and **define** the property and **explain** it in terms of the chemical/physical nature of water. **[16]**

b) **describe** how water affects the functioning of living organisms by **explaining** each of the following:

- **(i)** the ability of water to moderate temperature within living organisms and in organisms' environments**. [3]**
- **(ii)** the movement of water from the roots up and out the leaves of plants. **[3]**
- **(iii)** the role of water as a medium for the metabolic processes of cells. **[3]**

2. All life on Earth is carbon based. Our carbon basis allows for the formation of complex molecules.

a) Atomically speaking, what allows the element carbon to be the backbone of many large, complex macromolecules such as carbohydrates, fats/lipids, proteins and nucleic acids. **[5]**

b) For each of the four groups of complex carbon based molecules (*macromolecules*) mentioned above:

- **(i)** **discuss** the structural components of the macromolecule. **[12]**
- **(ii)** **state** one example of a molecule that belongs to each of the groups you chose and briefly **describe** its function. **[4]**

c) All of these groups of macromolecules are created from *monomers* joining to form *polymers*. **Name** and **describe** the chemical reaction that join and split these molecules. **[4]**

3. Proteins – large complex molecules – are major building blocks of all living organisms. **Discuss** each of the following in relation to proteins:

a) their chemical composition. **[5]**

b) levels of protein structure with a specific example of each. **[15]**

c) the roles of DNA, mRNA and tRNA in protein synthesis. **[5]**

4. Statistical Calculations:

Mean - Median - Mode - Standard Deviation - Standard Error / Standard Error Bars - Chi Square

*** We will begin our study of Basic Statistics on the first day of school. ***