

AP Biology Summer Packet

Dr. Clayton

Sonia.clayton@kinkaid.org

Please use the provided links to review some of the basic background building blocks in the nature of science, chemistry, and biology. Answer the questions for each category and bring them to class on the second day of class. There will be a very short reading check quiz on the second day of class as well.

This packet is meant to help you have a smooth start to the year in AP Biology. We will be visiting these concepts at the beginning of the year, so it is OK if you have some questions – write them down and we can discuss them in class.

Nature of Science:

<https://www.youtube.com/watch?v=TkvjDZseD4k>

1. What is the nature of science?
2. What does the statement “science is a human endeavor” mean?

Properties of water:

<https://www.youtube.com/watch?v=3jwAGWky98c>

1. Explain the shape of the water molecule and how that is important?
2. How does water get up a tree? What is this process called?
3. What are the properties of water that are important to life and how do hydrogen bonds contribute to properties of water?

Chemical Bonds (chemistry review):

<https://www.youtube.com/watch?v=7DjsD7Hcd9U>

1. What are the main chemical bonds? Examples of each.
2. How do main chemical bonds form?
3. Think about the biological importance of some of these chemical bonds.

Acids, Bases, and pH (chemistry review):

<https://www.youtube.com/watch?v=Xeuyc55LqiY>

1. How do you interpret the pH scale?
2. What does a change from pH 5 to 2 mean?
3. How changes in pH can affect biological systems?

Biological Molecules:

<https://www.youtube.com/watch?v=1Dx7LDwINLU>

1. What are the four types of biological molecules and why are they important to living organisms?
2. What are three types of lipids?
3. What are the monomers of carbohydrates and proteins?
4. What is the cellular function of each of the four organic molecules?
5. What is the difference between a nucleotide and nucleic acid?

Cellular Organelles:

<https://www.youtube.com/watch?v=URUJD5NEXC8>

Answer the following questions:

1. What is the main difference between prokaryotic and eukaryotic cells?
2. What are the names used to refer to DNA structure in the cell? What is the difference between them?
3. What are energy organelles in animals and plants? Do plant cells have mitochondria? Why?
4. Follow the path of a protein being made to be exported from the cell.
5. What is the theory of endosymbiosis (mitochondria and chloroplast)?