

Name \_\_\_\_\_

## AP Biology Practices - Video notes

**Welcome to AP Biology class. I am excited to be your teacher for next school year 2020-2021. Let us start some brainstorming during summer.**

Know how to find AP Biology videos at [www.bozemanscience.com](http://www.bozemanscience.com)

Look below each video for a link to the note sheet. I will expect you to be able to print them, or hand write them during summer or **If you choose to answer digitally \*\*PLEASE use a different color font when answering and email it to [Jumana.lakdawala@browardschools.com](mailto:Jumana.lakdawala@browardschools.com) only after August 1<sup>st</sup>, 2020\*\***

For the first video, I've given the direct links, for the rest you can search Bozeman with the practice name on You tube or [www.bozemanscience.com](http://www.bozemanscience.com).

## AP Biology Practice 1– Model and Representations 12:23

Video Review Sheets [www.bozemanscience.com/apb-practice-1-models-representations](http://www.bozemanscience.com/apb-practice-1-models-representations) (by Winnie Litten)

A. What is a model?.....A visual representation of

B. A \_\_\_\_\_ of how it works is a “Conceptual Model”.

C. What are the some of the **themes** we will be discussing in AP Biology? List below along with the example:

1. \_\_\_\_\_ - example shows natural \_\_\_\_\_
2. Free \_\_\_\_\_ - example:
3. \_\_\_\_\_ - genetics and cell
4. \_\_\_\_\_ - pyramid of \_\_\_\_\_

D. What are the 5 things you will need to be able to do using models and visual representations? [Keep in mind, some of the examples he uses may be unknown to you for now, focus on the “practice” not the content.]

1. \_\_\_\_\_
  - a. Relating to beetles, draw/label the final graph he created below:
  
  
  
  
  
  
  
  
  
  
  - b. Why do you think there were fewer light colored beetles when the trees became darker?

2. \_\_\_\_\_ What was is going to move in his example? \_\_\_\_\_
3. \_\_\_\_\_ They will give you a model and then \_\_\_\_\_ based on that.
4. \_\_\_\_\_ Means that you are \_\_\_\_\_ your knowledge to a visual representation
5. \_\_\_\_\_ Asking you to \_\_\_\_\_ the knowledge that you have.

E. Models allow us to make \_\_\_\_\_ of a \_\_\_\_\_ model.

F. What is the most famous model of all? \_\_\_\_\_ That was created by

\_\_\_\_\_

## AP Biology Practice 2 – Using Mathematics Video Review Sheet 9:27

[www.bozemanscience.com/apb-practice-2-using-mathematics](http://www.bozemanscience.com/apb-practice-2-using-mathematics)

NEED YOUR CALCULATOR!!! You are required to use a 4 function calculator on the AP exam. Get one now so you become familiar with it. (No scientific/graphing calcs that have a square root or squared button)

A. All sciences have what at their core?

B. What is “Mathematical Biology” driven by:

1. \_\_\_\_\_: sequencing DNA – what is the trend?
2. \_\_\_\_\_ Theory: being used to predict
3. Computing \_\_\_\_\_: computers are getting
4. Laboratory experiments in silico:
  - a. In vitro:
  - b. In vivo:
  - c. In silico: simulating

C. Four equations in the four big ideas: want to be familiar with these

1. Evolution:

2. Free energy:

3. Information:

4. Systems:

D. Understandings in Using Mathematics:

1. \_\_\_\_\_ the \_\_\_\_\_ of a Mathematical Routine: Pause video, try and do it and then check it. You should do this one no problem. Show your work below

2. Apply \_\_\_\_\_ Routines: Again, try this problem, showing your work below. I think you can do this one based on common sense!

3. \_\_\_\_\_ quantities that \_\_\_\_\_ natural phenomena.  
a. You can absolutely do this, show work.

b. Potatoes: you can do this too! \_\_\_\_\_M Sucrose

## AP Biology Practice 3 – Scientific Questioning Video Review Sheet

1. I should be able to ask you, “How do we....
2. Students should be able to answer, “This is how....
3. What is a good example of how you ask questions all the time?
4. What is the problem with:
  - a. Smallest bird question?
  - b. Universe question?
  - c. Genetically modified food question?
5. Why is the plant growth question more scientific?....  
  
but what is a problem with it too?
6. Why is the CO<sub>2</sub> question a good scientific question?
7. A good question is going to lead to: (2x)
8. What are the three things you have to be able to do during the practice of “Scientific Questioning”?
9. Write out one of the three questions he “posed” concerning the phylogenetic tree. (You are just asking, not answering.)
10. When you “refine” a question, you are taking it to another \_\_\_\_\_
11. What is the third part of scientific questioning?
12. What can you then do if you are good at scientific questioning?

## AP Biology Practice 4 – Data Collection Strategies Video Review Sheet

1. What is science? Diagram his flow chart (you can do it left to right): The belief that:

2. In addition to collecting data you have to be able to:

3. Questions in four areas:

a. To \_\_\_\_\_ Data Collection Strategies. See if you can guess the right answer to the photosynthesis question BEFORE he explains it. You can see how he justified his answer. Did you get it right? \_\_\_\_\_

b. To \_\_\_\_\_ a plan for \_\_\_\_\_ Data of your own

i. First you would need to:

ii. Then: \_\_\_\_\_ an experiment that What would a good essay contain?:

c. To \_\_\_\_\_ to

d. To \_\_\_\_\_ of Data.

4. What makes science, science?

## AP Biology Practice 5 – Analysis and Evaluation of Evidence

1. One of the first things you want to do with data is:
2. When you look at data, see if there are patterns that you can
3. You will be asked:
  - a. To \_\_\_\_\_ data to Identify
  - b. To \_\_\_\_\_ Observations and
  - c. To \_\_\_\_\_ Evidence
4. We collect data. First we have to \_\_\_\_\_ it and then we have to \_\_\_\_\_

## AP Biology Practice 6 – Scientific Explanations and Theories

- A. Diagram the process of developing a theory; be sure to include the feedback loops.
- B. The five ways to deal with theories and scientific explanations:
  1. Justify claims with
  2. Construct explanations based on
  3. \_\_\_\_\_ the Reasons that Explanations and Theories are
  4. Make \_\_\_\_\_ and predictions about
  5. Evaluate
- C. Theories get better and better over \_\_\_\_\_ and on the test they want you to be able to \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## AP Biology Practice 7 – Scales, Concepts and Representations

1. This practice is about \_\_\_\_\_ knowledge. Bringing together different disciplines.
2. Scale: draw and label an intersecting diagram and use one of his examples:
3. Domains: \_\_\_\_\_ of biology.

- a. Thermodynamics (Physics) Example:
- b. Biochemistry Example:
- c. Chemistry Example:

4. Big Idea examples: elaborate on

- a. Evolution example: peppered moth, what happens over \_\_\_\_\_
- b. Free Energy: Feedback loops and how they allow organisms to survive in...
- c. Information: Himalayan rabbit ex, expressing different genes depending on...
- d. Systems: Cotton ex sugar able to create...

5. Two goals:

- a. Connect Phenomenon and Models Across \_\_\_\_\_ and \_\_\_\_\_ scales. Try answering the question before he does. \_\_\_\_\_

6. Connect Concepts \_\_\_\_\_ and \_\_\_\_\_ Domains.

7. Are you going to try his Wiki game?

### **FUN Activity**

- 1. Your Name:
- 2. Something Special About You:
- 3. What do you know about your AP Biology Teacher?
- 4. What are your expectations from this class?
- 5. Something special you did during summer:(Please don't write watched on my phone or TV)