Name _____

AP Biology Practices - video notes

Know how to find AP Biology videos at 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 the school year. For the first video, I've given the direct links.
If you choose to answer digitally **PLEASE use a different color font when answering, submit it to the Google Classroom when complete.

AP Biology Practice 1– Model and Representations 12:23

Video Review Sheets 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 **four Big Ideas** 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

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_2 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 _____ _____
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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. ____
   b. Connect Concepts _____ and _____ Domains. Try _____

6. Are you going to try his Wiki game?