

Monday 3/23

Thank you all for coming in today either at 8am or 11am. I really needed to share with you the information from the college board, my take on the situation, get your feedback, and just reconnect a little.

But we have to start moving forward and make up for lost time. We are still in limbo as to what the focus of the AP 45-minute free response test will be. I was informed that we will know more on or near April 3<sup>rd</sup> as the people at the College Board figure it all out.

In the meantime, I would like to finish the curriculum and make sure the foundations of all curricular concepts have been established. This way we will have covered all of the information that you may have to call upon when you are asked “enduring understanding” questions that focus on analysis, synthesis, application, and problem solving as related to concepts we have learned in APES.

Our first topic is going to be The Living World: Ecosystems

It probably is easiest to print out the pages that we will reference and have them in front of you, but you handle it the way that works for you.

I will cut and paste the key concepts contained in this topic here and indicate the notes pages that go along with each of the concepts so that you don't have to keep going back and forth between files.

These concepts are covered on the notes pages posted on my website in what we can call “Topic 8 – Ecology”

For this Friday (or Wednesday if you wish to attend my online lesson and be guided through some of it), please read over the note pages that correspond to cover the bold concepts numbered 1-4 (as well as ecological succession that is in the biodiversity topic) and watch the videos at the following links.

Now remember ... I'm not asking you to memorize all of this. I didn't have time to chop down some of the material, but will help you focus on most important concepts when we meet. A lot of it should be a refresher, and I will answer questions and fill in the gaps during our meet times. I encourage you to read over the material with friends and even watch the videos together. Some of the videos are REALLY good and fun to watch in a group, some of them are just so-so, but do present the information well and give good visuals. I was going to put some explanations with each of the videos, but instead I just gave the files short names that we can refer to when we meet. The actual links are on my website. (they all played great on my phone and iPad)

Videos

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| 1. Symbiotic Relationships Intro   | 6. Jungle Vines                                    |
| 2. Crocodile and Plover BFFs   | 7. Battle at Kruger (one of my all-time favorites) |
| 3. Animal Partnerships   | 8. Warblers  |
| 4. Body Invaders ...<br>(you can skip if you want ... I showed you in class) | 9. Nurseries of the Sea                            |
| 5. Bear and Fox  | 10. Dying Reefs                                    |
|  | 11. Optional: Kung Fu Mantis v. Jumping Spider     |

# THE LIVING WORLD: ECOSYSTEMS

## 1. Explain how the availability of resources influences species interactions.

Notes pages 200-201, 202, 207-208 and Videos 1-8

- a. Ecosystems are the result of biotic and abiotic interactions. In a predator-prey relationship, the predator is an organism that eats another organism (the prey).
- b. Symbiosis is a close and long-term interaction between two species in an ecosystem. Types of symbiosis include mutualism, commensalism, and parasitism
- c. Competition can occur within or between species in an ecosystem where there are limited resources. Resource partitioning— using the resources in different ways, places, or at different times --- can reduce the negative impact of competition on survival.

## 2. Describe the global distribution and principal environmental aspects of terrestrial biomes.

Notes pages 236, 237-238 (**don't freak out** about this part ... just do a basic read over, look at the climographs and try to match biomes with numbers on map)

- a. A biome contains characteristic communities of plants and animals that result from, and are adapted to, its climate.
- b. Major terrestrial biomes include taiga, temperate rainforests, temperate seasonal forests, tropical rainforests, shrubland, temperate grassland, savanna, desert, and tundra.
- c. The global distribution of nonmineral terrestrial natural resources, such as water and trees for lumber, varies because of some combination of climate, geography, latitude and altitude, nutrient availability, and soil.
- d. The worldwide distribution of biomes is dynamic; the distribution has changed in the past and may again shift as a result of global climate changes.

## 3. Describe the global distribution and principal environmental aspects of aquatic biomes.

Notes pages 239, 240, 241-243, 244-246 and Videos 9-10

- a. Freshwater biomes include streams, rivers, ponds, and lakes. These freshwater biomes are a vital resource for drinking water.
- b. Marine biomes include oceans, coral reefs, marshland, and estuaries. Algae in marine biomes supply a large portion of the Earth's oxygen, and also take in carbon dioxide from the atmosphere.
- c. The global distribution of nonmineral marine natural resources, such as different types of fish, varies because of some combination of salinity, depth, turbidity, nutrient availability, and temperature.

#### 4. Explain how solar energy is acquired and transferred by living organisms.

Notes pages 242

- a. Primary productivity is the rate at which solar energy (sunlight) is converted into organic compounds via photosynthesis over a unit of time.
- b. Gross primary productivity is the total rate of photosynthesis in a given area.
- c. Net primary productivity is the rate of energy storage by photosynthesizers in a given area, after subtracting the energy lost to respiration.
- d. Productivity is measured in units of energy per unit area per unit time (e.g., kcal/m<sup>2</sup>/yr).
- e. Most red light is absorbed in the upper 1m of water, and blue light only penetrates deeper than 100m in the clearest water. This affects photosynthesis in aquatic ecosystems, whose photosynthesizers have adapted mechanisms to address the lack of visible light.