**2018 AP Biology Group Assignment**

**Optional Human Systems Project and Presentation**

**(\*Worth 1 test grade-max grade: 95)**

(**30 Points**) Your group will **teach for 15-20 minutes (including giving a quiz)**, supported by your visual/ graphic/animation heavy PPT (or Prezi) about a Body System, as presented by your textbook and highlighted below. Content should be factual and AP appropriate. One slide should include how your system addresses one of the 4 BIG IDEAS in AP Biology and your last slide should have works cited. Each person in the group must teach a minimum of 3 minutes. A designated # of slides is not required (& will not be on the rubric), however, quality of each slide will be on the rubric. Keep in mind you are creating AP Exam review material, but you also want your presentation to be **creative, well organized and interesting**. \**Note: there will be a deduction for going over or under the time allotment. You must be well prepared!*

 (**25 Points**) You will submit a **handout** (1-2 pages, minimum) to accompany your lesson. **It must include** (but not limited to): labeled diagram(s) related to your lesson content on it, one strategy for learning something in the content, a 5-7 question multiple choice “quiz” (AP appropriate) & works cited (separate page). Each group will have to give the quiz (this is part of your 20-minutes). Your group can decide if students will self-grade, peer-grade or your group members do the grading. Just make sure they get feedback as to how they scored, which can be given back to them on Wednesday if your group decides to grade them. Please copy enough handouts for your classmates (~25) & one handout for me BEFORE you arrive to class. On a **2nd handout for me**, you will have your “answers” to the quiz.

**(20 Points)** You will include a form of **art data**. This may be in the form of a model (either ‘physical’ or by computer) relevant to your topic. I am open to other ideas, but it must meet an “art standard” (standards are on the Cobb County & DOE state websites, with links provided on my blog). Be creative here! Think STEAM Symposium…

(**20 points**) **Participation**: Your group must share a folder with me either on Google Drive or Microsoft Office 365. Each group must send me an invite by this Friday at 4:00 PM. I will check to see who is ACTIVELY participating and who isn’t. You will also “privately” rate your group members’ contributions (form forthcoming). Therefore, each member in the group will likely receive different grades. Chapterinformation, below, is required. Groups are expected to go beyond the requirements. **READ THIS**: ***If a group member ‘bails’ on completing the project and leaves their group ‘stranded’, the member will receive a “0” as their project grade (test category). Once you commit, you must follow through!***

**Chapter 41: Animal Nutrition (Digestion)**

* 4 Main stages of food processing
* Pathway of food through the body, highlighting
	+ What food is digested where and by what
	+ Essential nutrients
	+ Structure and function of specific digestive compartments
* Insulin vs Glucagon

**Chapter 42.1-42.4: Circulation**

**-Pathway of O2 and CO2 through the body, highlighting**:

-Systemic vs Pulmonary Circulation

-Pathway thru heart (Oxy blood from deoxy blood)

-Artery, Vein, Capillary

\*Relationship to Respiration

**Chapter 42.5-end of chapter: Respiration**

-Also, include the diaphragm & Boyle’s Law (not in this chapter)

-Partial pressures of O2 and CO2

Structure and function of specific respiratory compartments

* + Characteristics of respiratory surfaces
	+ alveoli

\*Relationship with circulatory system

**Chapter 44: Regulating the Internal Environment: Excretion**

* Various stimuli and responses that maintain homeostasis indicating what osmoregulation is and give a few examples of different animals’ use of it
* The categories of nitrogenous waste, which animal groups produce each and why
* Describe the 4 key functions of excretory systems and show where these occur in the mammalian kidney
* Describe and give examples of different adaptations of the vertebrate kidney to diverse environments

 **Chapter 46/47: Reproduction and Development** (\*Do not heavily focus on the hormones)

* Sexual vs. Asexual Reproduction (Advantages, Disadvantages, examples)
* Triggers to Reproduction and Different Patterns (with examples)
* How oogenesis and spermatogenesis differ
* The events that occur after fertilization (what happens when a sperm contacts an egg)
* The difference between totipotent, pluripotent, and multipotent cells (and examples of each)

**Chapter 50: Sensory** (\*I will do Chapter 48- Neurons)

* 4 basic functions of sensory pathways
* Location, function, and examples of several types of sensory receptors
* Mechanism (including main structures) of EITHER hearing, taste, smell, or vision
* Comparison of different animals’ senses (including specific examples)

 **Chapter 49- Nervous Systems** (\*I will do Chapter 48- Neurons)

* Cephalization and its advantages
* Components of a reflex arc and how they work (This has been on an AP test)
* Structure and function of brain and its components (basic)
* CNS vs PNS (basic)

 I will ‘lecture’ the Chapters related to systems from: Ch 40, 43, 45, 48, 51 (*emphasized* on AP Bio Exam).

\*\***Due date:** **Monday, 11/26**. We will draw from a hat and determine the presentation order. Most info from your presentations will not be on the Unit test, **but could be on the AP Exam**.

**BIG IDEAS:** The key concepts and related content that define the revised AP Biology course and

exam are organized around four underlying principles called the *big ideas*, which are as follows:

Big Idea 1 (Evolution): The process of evolution drives the diversity and unity of life.

Big Idea 2 (Cellular Processes): Biological systems utilize free energy and molecular building blocks to

grow, to reproduce, and to maintain dynamic homeostasis.

Big Idea 3 (Genetics & Information Transfer): Living systems store, retrieve, transmit, and respond to information essential to life processes.

Big Idea 4: (Interactions): Biological systems interact, and these systems and their interactions

possess complex properties.