**Biology II Honors Final Exam STUDY GUIDE**

**Unit 1- Biology I Review**

I would revisit the “Bio I in pictures” project you did right at the beginning of the year. You could also get acquainted with the first 19 chapters of the textbook….A large reoccurring theme from Bio I that followed us to Bio II is the MAINTENANCE OF HOMEOSTASIS. You should also consider the major differences between eukaryotic & prokaryotic cells (structures and functions)

**Unit 2: Unifying Concepts of Animal Structure and Function**

1. Know the types of epithelial tissue (simple cuboidal, stratified cuboidal, simple columnar, stratified columnar, simple squamous, stratified squamous, pseudostratified)

2. Know the types of connective tissue (CFLABB: bone, blood, loose connective, fibrous connective, cartilage)

3. Know the types of muscle tissue (skeletal, smooth, cardiac) and be able to identify them by sight and description (description could be looks, location or function)

4. Be able to identify tissue type as being nerve.

5. Familiarize yourself with the structures and functions of the major body systems.

**Unit 3: Nervous, Endocrine and Reproductive systems**

1. Know the structure of a neuron. (dendrites, myelin sheath, nodes of Ranvier, axons)

2. Central vs. peripheral nervous systems.

3. Why is a reflex arc different from a normal stimulus response?

4. Be familiar with the way a nerve impulse moves down a neuron (technically called an action potential.) (Be sure to know the role of Na & K)

5. Know the major glands (location, product, function)

6. What brain structure is considered to be most animals “control center” for hormone production? What brains structure is considered to be the “master gland” ( It takes orders from the control center)

7. Be familiar with the structure of an eyeball.

8. Be familiar with the structure of an ear.

9. Cones vs. rods

10. Know the structures and functions of the tongue (sweet, sour, salty, bitter & umami)

11. Negative vs. positive feedback

12. Be familiar with the following structures of a male reproductive system: epididymis, vas deferens, scrotum, testes, prostate, bulbourethral gland, penis (this means be able to locate the structure itself as well as it’s job within the system)

13. Be familiar with the following structures of a female reproductive system: uterus, fallopian tube, ovary, cervix, and vagina

**Unit 4: Cardiovascular System (circulatory/respiratory)**

1. Be able to identify the following structures of the heart: left and right chambers; left and right ventricles; mitral, bicuspid, aortic & pulmonary valves; pulmonary veins and artery; aortic vein and artery

2. Be able to identify the following structures of the respiratory system: nasal & oral cavities; pharynx; larynx; epiglottis; trachea; bronchi; bronchiole; alveoli; diaphragm

3. Know the difference between arteries & veins & capillaries: TYPICAL colors (who is red, who is blue; what does the red and blue colors represent?) Which VEIN is an exception to this rule and why?

4. What facilitates diffusion into and out of capillaries?

5. Blood pressure is a measurement of what?

6. Be able to trace the flow of blood from the heart to the toes.

7. Clarify the misconception that “our blood is blue until it hits oxygen from the air”.

8. Be able to describe the resting shape of the diaphragm vs. the contracted shape of the diaphragm. When is the diaphragm resting (inhale or exhale), when is the diaphragm contracted (inhale or exhale)?

**Unit 5: Digestive and Urinary Systems and Nutrition**

1. Alimentary vs. gastrovascular canals

2. Know the path food will travel from consumption to waste disposal and be familiar with what is taking place at each step along the way.

3. What is the function of intestinal villi and microvilli?

4. Know the series of events that creates urine and the structures associated with the system.

5. Be familiar with the components of a healthy and balanced diet as well as calories someone of your age should be consuming.

6. Be able to identify the structures of both the urinary and digestive systems.

7. Long digestive system vs. short digestive system (plant vs. meat diet)

8. Omnivore vs. herbivore vs. carnivore

9. Fluid feeders vs. substrate feeders vs. suspension feeders vs. bulk feeders

**Unit 6: Skeletal, Muscular and Integumentary Systems**

1. Know the major bones of the body (30) and skull (8). Which of those bones make up the axial skeleton and which make up the appendicular skeleton?

2. What is the function of spongy bone?

3. Know the major muscle groups of the body.- only the ones you were required to identify in this unit.

4. Ligament vs. tendon

5. Know the basic functions of each system.

6. Eccrine vs. apocrine glands

7. 1st vs. 2nd vs. 3rd degree burns

8. Be familiar with the layers of skin and what structures are found in each layer. What additional job is done by the subcutaneous fat layer of skin?

**Unit 7: Bacteria, Immunity and Viruses**

1. Bacteria and Archae have no nucleus or membrane bound organelles so they are considered \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Bacteria have the ability to mutate quickly because they carry extra DNA in the form of a \_\_\_\_\_\_.

3. Breastfed babies get a \_\_\_\_\_ immunity from their mothers.

4. What type of fever increases the maturation rate of WBC’s?

5. This material is released during an inflammatory response allowing blood vessels to become leakier.

**Unit 8: Taxonomy**

1. Aristotle vs. Linnaeus

2. Be able to read a dichotomous key

3. Know the modern day levels of Classification (K,P,C,O,F,G,S)

4. Know characteristics of the 6 kingdoms (Animalia, Plantae, Protista, Fungi, Bacteria,

 Archaebacteria)

**NO WORRIES, YOU GOT THIS….**