Benchmark Study Guide – Quarter 2

A. Introduction Unit:

1. Scientific Method: Know the definitions of the following vocabulary:

Variable-

controlled variable-variables that do not change in the experiment

control group-standard for comparison –what you start with

controlled experiment-experiment in which everything stays the same except for one.

independent variable-the variable that changes

dependent variable- variable that changes because of the independent

experimental group-group that the experiment is conducted (receives the independent variable)

2. List the 6 steps of the scientific method in order. Ask a question, gather information, form a hypothesis, conduct an experiment, analyze results, and draw conclusions.

3. What is the difference between a controlled variable and a control group? Controlled Variable doesn’t change, Controlled group is the standard of comparison (before adding independent variable).   
4. How are independent variables and dependent variables different? Independent changes, dependent changes because of the independent.

5. What is the difference between an inference and an observation? Observation= what we observe with our 5 senses. Inference, is what we infer about something (based on evidence).

6. What is the difference between a qualitative observation and a quantitative observation? Qualitative- describes physical characteristics. Quantitative- numbers and data.

B. Unit 1 - Classification:

1. Know the definitions of the following vocabulary:

Autotrophic- makes its own food  
 Heterotrophic-cannot make its’ own food  
 Eukaryote- YES Nucleus  
 Prokaryote-NO nucleus   
 Multicellular- more than 1 cell  
 Unicellular- 1 cell  
 Dichotomous key (know how to use it)

2. Know the 6 characteristics of living things. Similar chemicals, grow and develop, respond to stimuli, reproduce, use energy, made of cells

3. Know the levels of the classification system from largest to smallest. (King Phillip…) Kingdom, Phylum, Class, Order, Family, Genus, Species

4. What are the 3 parts of the Cell Theory? All living things are made of cells, cells are the basic unit of structure and function of all living things, and all cells come from pre-existing cells

5. Know the characteristics of each of the Six Kingdoms of living things. **Circle** the answer for each kingdom regarding the number of cells, presence of a nucleus, and type of nutrition.

Bacteria multicellular/unicellular prokaryotes/eukaryotes autotrophic/heterotrophic

Protista multicellular/unicellular prokaryotes/eukaryotes autotrophic/heterotrophic

Fungi multicellular/unicellular prokaryotes/eukaryotes autotrophic/heterotrophic

Plantae multicellular/unicellular prokaryotes/eukaryotes autotrophic/heterotrophic

Animalia multicellular/unicellular prokaryotes/eukaryotes autotrophic/heterotrophic

C. Unit 2 - Cell Organelles and Processes:

Know the definitions of the following vocabulary:

Cell membrane- Moves substances into and out of the cell

Cytoplasm- jelly like substance that keeps organelles in place

Nucleus- chromosomes found here

DNA- genetic material found in the nucleus

Mitochondria- powerhouse of the cell

Cellular respiration- Uses glucose and oxygen to make food for the plant.

Vacuole- stores water and waste for cell

Chloroplast- contains chlorophyll; makes food for plant cells

Photosynthesis- process in which plants make glucose (sugar) and Carbon Dioxide using oxygen, sunlight, and water.

Cellular Respiration- process in which glucose and oxygen make energy for the cell.

D. Unit 2 - Cell Transport:

1. Know the definitions of the following vocabulary:

Diffusion- particles move from high to low concentration.

Endocytosis- bringing particles into the cell   
 Exocytosis- removing particles from the cell   
 Osmosis – diffusion of water   
 Active Transport – USES ENERGY  
 Passive Transport- DOESN’T USE ENERGY

2. From least complex to most complex, know the correct order of the levels of organization of a multicellular organism. Be sure to know the definition of each term. CELLS, TISSUES, ORGANS, ORGAN SYSTEM, ORGANISM.

E. Unit 3 - Organ Systems:

1. Know the functions of the following systems:

Integumentary- HAIR, SKIN, AND NAILS  
 Muscular- MUSCLES, Tendons  
 Skeletal-BONES, RED BLOODS CELLS,   
 Excretory- Excretes waste Kidneys, bladder, liver, urethra, skin, lungs, \*Urinary

2. Know the definitions of the following terms:

Voluntary muscles- YOU CAN CONTROL IT!   
 Involuntary muscles- you don’t control it ex. Blinking or breathing.   
 Skeletal muscles- move your bones   
 Smooth muscles- muscles found in the stomach; involuntary   
 Cardiac muscles- hear

3. Which organs are involved in the excretory system? How? Skin (sweat), Lungs (CO2), and Bladder   
4. What are the three main parts of the brain and their functions? Cerebrum (left and right hemisphere), Cerebellum, and brain stem  
5. What is the function of lymph nodes? To trap disease causing bacteria and makes white blood cells.  
6. What is a virus and why is it not considered to be a living thing? A virus is… NOT LIVING!!! The only thing they can do that living things also do is…REPRODUCE