**Biology–End of Year Review 2018 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Cell Biology/Chemistry** (p. 56-120)

1. *GVC #1 Matter Notes*-List the 4 main elements in living organisms.
2. *Properties of Water Notes* -Explain
   1. Universal Solvent-
   2. High Heat Capacity-
   3. Ability to bond with other molecules-
3. *Macromolecule Notes-*List the function of the 4 macromolecules
   1. Carbohydrates
   2. Proteins
   3. Fats (lipids)
   4. Nucleic Acids
4. What is an enzyme?
5. *Cell Venn Diagram/Cell Notes* - How is a Prokaryotic Cell different from a Eukaryotic Cell?
   1. Prokaryotic-
   2. Eukaryotic-
6. *Cell Theory Notes-*What are the 3 parts of Cell Theory?
7. What is the function of each Organelle below?

A. Ribosomes-

B. Mitochondria-

C. Cell Membrane-

D. Chloroplast-

E. Vacuole-

F. Golgi Apparatus-

1. *Cell Transport Notes* -Explain the following types of cell transport:
   1. Osmosis-
   2. Diffusion-
   3. Active Transport-
2. What is Homeostasis?
3. *Photosynthesis vs. Cell Respiration Notes*- What is Photosynthesis?
   1. What is Cell Respiration?

**Heredity and Genetics** (p. 174-221)

1. *DNA Notes -* 
   1. What are the 3 parts of a Nucleotide?
   2. What structure does DNA form?
2. Explain what mutations are.
3. Describe
   1. DNA Replication-
   2. DNA Transcription-
   3. DNA Translation-
4. *Types of Reproduction Notes* – How are sexual and asexual reproduction different?
   1. Sexual Reproduction
      1. How does it provide for genetic variation?
      2. Where do we get our genetic information from?
      3. Is genetic variation achieved?
   2. Asexual Reproduction– What is it?
      1. Give 3 examples
      2. Is genetic variation achieved?
5. What is fertilization?
6. *Cell Cycle Notes* - Explain cellular division (mitosis)
   1. Describe the 4 phases of Mitosis
   2. How is Meiosis different from Mitosis?
7. *Genetics Book Notes/terms* -Mendel’s Genetics – Punnett Squares – Explain the different types of heredity:
   1. Dominant/recessive
   2. incomplete dominance
   3. Sex-Linked traits
   4. Know how to use a Punnett Square
8. In humans, having hitch-hiker’s thumb is a dominant trait (T).
   1. Show a Punnett Square cross of the possible children for a man who is heterozygous for hitch-hiker’s thumb and a woman who does not have hitch-hiker’s thumb.
   2. What percent of their children will have hitch-hiker’s thumb?
9. Explain Mendel’s Laws
   1. Law of Segregation-
   2. Law of Independent Assortment-
10. What is a hybrid?
11. What is a purebred?
12. What is artificial selection (selective breeding)?

**Evolution and Classification** (p. 222-276)

1. Explain the 3 ideas that are the Foundation for Darwin’s Principles of Natural Selection.
2. Define “fitness”-
3. Explain how mutations affect natural selection.
4. What are the advantages of having a population that is genetically diverse?
5. Define species.
6. How is a new species formed?
7. *Evidence for Evolution Notes* - Give examples of the following evidences that support evolution.
   1. Homologous Structures-
   2. Vestigial Structures-
   3. Embryology-
   4. DNA Sequences-
8. *Taxonomy Notes* -How are organisms classified?
9. What is a dichotomous key? (make sure you can use one)

**Organ Systems** (p. 121-173)

1. *Plant Notes-*Explain the function on the following systems/parts of the plant

Flower & its parts

Stem-

Roots-

Leaves-

Xylem-

Phloem-

2. *Organ Systems Notes-*What is homeostasis?

3. *Organ Systems Notes-*Know the function of the following organ systems & identify the main organs of each system:

**Skeletal**

**Muscular**

**Nervous**

**Endocrine**

**Circulatory**

**Lymphatic**

**Respiratory**

**Digestive**

**Urinary/Excretory**

4. Compare parts of the plant to parts of the body with similar functions

Xylem/Phloem

Flower

Stem (structure)

Leaves

**Ecosystems** (p. 1-55)

1. *Ecology Book Notes –* What are examples of Abiotic and Biotic factors?
2. *Energy notes* Explain how energy flows through an ecosystem
   1. What is the difference in autotrophs and heterotrophs
   2. What is a food chain?
      1. 10% is transferred to the next level, What happens to the other 90%?
   3. What strategies could an organism use to conserve energy?
3. Explain the following Relationships of living things
   1. Predator-prey-
   2. Competition-
   3. Symbiotic: Mutualism-
   4. Symbiotic: Commensalism-
   5. Parasitism
4. *Cycles Assignment-*Matter cycles within an ecosystem – Explain
   1. Carbon/oxygen cycle
      1. Photosynthesis
      2. Respiration
   2. Nitrogen cycle
   3. Water cycle
5. What effects do humans have on matter cycles?
   1. Carbon Cycle – What is the main source of pollution?
6. What is biodiversity?
   1. Why is biodiversity valuable?

**Scientific Thinking**

**1. Science is a way of knowing used by many people, not just scientists.**

**2. Scientists use a variety of methods. There is not just one “scientific method”.**

**3. Science findings are based on evidence.**

**4. New evidence may change previous beliefs.**

**5. Scientific conclusions are based on the idea that natural laws operate the same today as they did in the past and will continue to do so in the future.**

**6. A theory in science is supported by a large body of evidence.**

**7. Scientists do not work in isolation. They rely on the work and findings of past and present scientist**