**Biology Fall Final Review**

**Chapter 1 – The Science of Biology**

1. What are the steps of the scientific method? Explain each step.
2. What are the different parts of the microscope? How do you prepare a wet mount slide?
3. Know how the metric system works.
4. What are the characteristics of living things?
5. What is homeostasis
6. What is metabolism?

**Chapter 2 – Chemistry if Life**

1. Explain the process of polymerization and hydrolysis.
2. What are the elements that are found in living things?
3. Name the four macromolecules found in livings. Give characteristics and examples of each.
4. What are the monomers that create the macromolecules?
5. Define activation energy.
6. What are products and reactants?

**Chapter 7 – Cell Structure and Function**

1. List a cell’s organelles and their functions.
2. What is the difference between a prokaryote and eukaryote cell?
3. What do plant cells have that animal cells don’t have?
4. Explain diffusion, osmosis, facilitated diffusion and active transport. Which one requires energy? Which one requires transport proteins?
5. What are the different levels of organization in living things from smallest to largest?

**Chapter 8 – Photosynthesis**

1. What is the difference between an autotroph and a heterotroph? Give examples of each.
2. What are the 3 parts of an ATP molecule?
3. What is the overall equation for photosynthesis?
4. What is the function of pigments?
5. Where does the light reaction of photosynthesis take place?

**Chapter 9 – Cellular Respiration**

1. Where does cellular respiration take place?
2. Does cellular respiration take place in plants, animals or both?
3. What is the overall equation for cellular respiration.
4. What are the three steps (processes) of cellular respiration?
5. What are the two types of fermentation and when do they occur?

**Chapter 10 – The Cell Cycle**

1. Name and describe the phases of Interphase and Mitosis.
2. Draw a picture of a Chromosome and label the centromere and chromatids.

**Chapter 35 – Nervous System**

1. What are the functions of the cerebrum and the cerebellum?
2. What are the three types of neurons? Which direction do they carry an impulse?
3. What makes up the CNS? PNS? Autonomic system?
4. What is a nerve impulse?
5. List the parts and functions of the eye.

**Chapter 36 – Skeletal, Muscular and Integumentary System**

1. What is a hinge joint? Ball and socket joint?
2. Define tendon and ligament?
3. Explain ossification. When and why does it occur?
4. Draw a cross section of the bone and label the different parts and their function.
5. What are the three types of muscle tissue? Name some characteristics of each and give examples of where they are found.
6. What is the basic unit of concentration in a muscle fiber?
7. What is the integumetary system? Function? Different layers and what they contain?

**Chapter 37 – Circulatory and Respiratory System**

1. Draw the heart and label all parts. Trace the path of one red blood cell through the heart. What is the name of the membrane that surrounds the heart?
2. Which side of the heart carries oxygen-rich blood? Oxygen-poor blood?
3. What are the difference between an artery, vein and capillary?
4. What is the Function of the spleen? Lymphatic system?
5. What is the function of red blood cells? White blood cells? Platelets? Valves?
6. How do hemophilia and sickle cell anemia affect the circulatory system?
7. Trace the path of oxygen through the respiratory system and into the circulatory system.
8. What controls breathing rate?
9. What separates the chest cavity from the abdominal cavity?
10. Explain the movement of the diaphragm during exhalation and inhalation.

**Chapter 38 – Digestion and Excretory Systems**

1. Draw the digestive system and the trace the path of the food. What happens to the food in each part? What enzymes are found in each part? (Example- Salivary glands, stomach etc)
2. What nutrients should we have and why are they important?
3. What are villi?
4. What does the liver contribute? The pancreas?
5. Which organ chemically digests and absorbs the food?
6. Draw and label the excretory system? What is the function?
7. What is a nephron?
8. How do enzymes affect the reactions in living cells?
9. Why are the walls of the stomach made of muscle fibers?
10. If a person has nephritis, they have an inflammation in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Chapter 39 – Endocrine and Reproductive System**

1. Explain how a negative feedback mechanism works.
2. Which hormones do the pancreas release and what are their functions?
3. How are levels of hormones controlled in the blood?
4. Trace the path of sperm out of the male’s body, naming organs it passes through on its way and how they contribute to the semen.
5. Trace the path of an ovum out of the female’s body, naming organs it passes through and what happens at each organ.
6. What are fertilization, menstruation, and ovulation?
7. Put the following in order: gastrulation, ovulation, fertilization, implantation
8. Name the female sex hormones and the male sex hormones.
9. Why is it important that humans continue to reproduce?

**Chapter 40 – Immune System and Disease**

1. How are bacterial infections treated?
2. How does your body respond to an infection?
3. What is the difference between and nonspecific defense and a specific defense?
4. What is an antigen?
5. Which cells make antibodies?
6. Why do we get vaccines when we are infants?
7. Name the different T cells and B cells and describe what they do in an immune reponse.
8. What do B cells produce?

**Frog Lab Questions**

1. Why is the top of the frog a dark color?
2. What phylum and class are frogs in?
3. Why are the frogs’ lungs small compared to humans?

**Suggestions:** Make a schedule and study only a few chapters at a time. Study in groups and quiz each other. Review your notes for the whole year. Review the chapter assessments and past unit test review sheets. Get a good night’s sleep before the final.