**Anatomy and Physiology Unit 2**

**Unit 2 Skin and Body Membranes/Skeletal System/Muscular System** (9  **weeks)**

**Essential Question:** How does the structure of the body tissues, skin, bones and muscles contribute to the function of homeostasis?

**Unit 2.1** Body Membrane: Epithelial Membranes, Connective Tissue Membranes; Essential Question: How does the structure and function of the components of epithelial tissue relate to the function of such tissues?

**Unit 2.2** Functions of the Integumentary system as it relates to the structure, color, and appendages of the skin

**Unit 2.3** Five Major Functions of Bones, Classification of Bones, Bone formation, growth and remodeling; Essential Question: How do the major functions of bones relate to overall homeostatic functions of the entire organism?

**Unit 2.4** Axial skeleton Form and Function: Protection, Hematopoiesis: Making Blood Cells Essential Question: How do the ribs and skull protect the internal organs and the brain?

**Unit 2.5** Appendicular Skeleton Form and Function: Movement; Essential Question: How can we model the inter-relationship between muscles movement and bone movement?

**Unit 2.6** Three types of joints; developmental aspects of bones and joints; Focus on the Knee Essential

Question: Why is the knee and knee injuries important for functional movement of humans?

**Unit 2.7** Muscular System: Type of Muscle, Muscle Function: Focus on Movement and Generating Heat. Essential Question: How does the generation of heat in muscle tissue contribute to the homeostasis of body temperature?

**Unit 2.8** Skeletal Muscle and Muscle Movement; Essential Question: What are the main mechanisms needed for muscle movement at the molecular level?

**Unit 2. 9** Gross Anatomy of Skeletal Muscles Essential Question: How does the origin and insertions of muscles relate to the movements of each bone they are attached to?

**Unit 2.10** Research Project: Kinesiology Case Studies

**Unit 2: Major Assignments:**

Focus notes for all sections

Anatomy and Physiology Coloring Book assignments for review

Unit Section Short Answer quizzes

**Research Project**: Kinesiology Case Studies, Sedentary vs. Active Lifestyle Research Project

Students will do a study of their own lifestyle choices in a daily log for 4 weeks. They will also record how much sleep they get, what they eat. They will do background research on what it the best level of physical activity to engage in at their age range and report whether or not they are getting the correct number of hours of exercise per week along with safe choices for the types of exercise or physical activity.

**Labs Unit 2:**

This section of labs will emphasize structure and function of bones and muscles. Students will do an in depth lab report for the Kinesiology Lab Report with analysis of data to show correlations between athletes and non-athletes and blood oxygen levels. The case scenarios will relate to diagnosis of clinical presentation of sports injuries.

* Dissection of chicken legs and bones
* Dissection of Fetal pigs ( 3 week on going lab)
* Lab; Tissue dissection of muscle tissue and epithelial tissue microscope lab
* **Lab;** kinesiology study from collected data sets from athletes/non athletes. Students will observe, analyze and interpret data. Lab Report will include analysis of the effect of exercise on blood oxygen levels.
* **Unit 2 lab practical 2.1:** dissections of the fetal pig identification of multiple organs and muscle origins and insertions
* **Unit 2 Lab practical 2.2:** Selected Clinic Analysis of Case Scenarios.