

## CP BIOLOGY 2004-2005

### **Biology Essential Questions & Products**

This course will teach the fundamental concepts of biology in an integrated mode. The major themes covered this year will be evolution, homeostasis, energy, reproduction, development and ecology. The course is designed to teach scientific reading comprehension, essay writing, problem solving and critical thinking in science. In addition, students will learn the processes of science such as forming hypothesis, designing experiments, collecting and analyzing data and drawing conclusions. Students will work in both cooperative learning groups and independently. The textbooks for this course are Biology: A Human Approach by BSCS, and Biology by Miller/Levine

#### **Quarter 1**

##### **Homeostasis:**

###### Essential Questions

- 1 How do organ systems function and interact together in order to regulate internal environments to maintain homeostasis?
- 2 How does the structure of cells enable various forms of molecular transport?
- 3 How do enzymes function to maintain homeostasis in the body?

###### Products:

1. Critter/Model Organism Project
2. Formal Lab Report
3. Laboratory Investigations may include:
  - a. Eggsperiment
  - b. Onion
  - c. Dialysis Tube
  - d. pH lab
  - e. Catalase lab
  - f. Temperature lab

#### **Quarter 2**

##### **Enzymes to Energy to Ecology:**

###### Essential Questions

- 1 How does the body break down food into macromolecules?
- 2 How do enzymes and organ structures break down food and release energy?
- 3 What is the role of photosynthesis and cellular respiration in cycling carbon, oxygen and nitrogen through ecosystems?
- 4 What are the physical and chemical impacts of humans on ecosystems?
- 5 How do organisms interact with each other and their environment?

###### Products:

1. Critter/Model Organism Project
2. Test/Quiz
3. Lab Journal
4. Independent Research Paper
5. Develop a work plan to answer a testable question
6. Case studies
7. Scientific journal articles
8. Laboratory Investigations may include:
  - a. Photosynthesis
  - b. Cellular Respiration
  - c. Calorimetry
  - d. Enzyme Reactions
  - e. Macromolecule Identification