

Overview of STEP Curriculum Module-Summer 2008

I. Title of Module:

- Anatomy & Physiology

II. Author:

- Nancy Roman

III. Grade Level:

- High School 9-12

IV. Nature of the Students:

- Urban Minority Students

V. Purposes (Course Objectives):

1. Students will learn about structure and function of different organs and organ systems using dissecting and analysis techniques.
2. Students will be able to collect, organize, analyze, compare and interpret data obtained.
3. Students will observe animal behavior relating to environmental stimuli.
4. Students will design and conduct animal behavior experiments.
5. Students will learn to identify stimulants and depressants by their effects on the heart rate of Daphnia.

VI. Overview: (Course Description):

1. This course offers high school students the opportunity to investigate biological concepts that apply to the field of anatomy and physiology. The activities include dissecting two different specimens (frog and pig), observing, analyzing, and predicting animal behavior, and identifying drug types by their effect on the body's homeostasis.
2. The dissection of a Pig is used to analyze structure and function. The data obtained will be used to better understand body systems of the human.
3. The dissection of a frog is used to analyze and compare both organisms in terms of their structural/functional similarities and differences. Similarly the essential role of the kidneys will be examined.
4. The animal behavior lab will introduce students to the field of Ethology (animal behavior science). Using the scientific method, students will have an opportunity to investigate some innate behaviors characteristic of animals such as "Pillbugs".

5. Daphnia (a type of crustacean) will be studied in terms of their anatomical features and location of the heart. After treating Daphnia with different chemicals, the counting of the heartbeats will allow students to determine whether the chemicals are stimulants or depressants.

The schedule of activities is outlined below:

SCHEDULE

Day # Activity

1. Pig dissection part 1
2. Pig dissection part 2
3. Pig dissection part 3
4. Pig dissection part 4
5. Frog dissection part 1
6. Frog dissection part 2
7. Animal behavior: Pillbugs
8. The effects of drugs on Daphnia