

**ANATOMY and PHYSIOLOGY**  
**Hopatcong High School**  
**2008-2009**

Prerequisite:  
As per Department Policy

**Course Description**

This one semester course is designed for the student to investigate Human Anatomy and Physiology through a series of lab activities. The course will guide the student through systems of the human body. The course will be augmented by a series of internet based reports on each human system with an emphasis on normal function and abnormal function of each organ system. The dissection segment will be ongoing and offered in both real dissections and virtual dissection in the tech rich rooms.

Internet activity will revolve around web pages associated with the text and accompanying charts and visuals.

**CORE CURRICULUM CONTENT STANDARDS:**

STANDARD 5.5 (CHARACTERISTICS OF LIFE) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.

**CUMULATIVE PROGRESS INDICATORS:**

**Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:**

**A. Matter, Energy and Organization in Living Systems**

1. Relate the structure of molecules to their function in cellular structure and metabolism.
2. Explain how plants convert light energy to chemical energy.
3. Describe how plants produce substances high in energy content that become the primary source of energy for life.
4. Relate disease in humans and other organisms to infections or intrinsic failures of system.

**C. Reproduction and Heredity**

1. Describe how information is encoded and transmitted in genetic material.
2. Explain how genetic material can be altered by natural and/or artificial means; mutations and new gene combinations may have positive, negative, or no effect on organisms or species.
3. Assess the impact of current and emerging technologies on our understanding of inherited human characteristics.

**SUGGESTED ACTIVITIES THAT ADDRESS THESE STANDARDS MAY INCLUDE BUT ARE NOT LIMITED TO: (Arrange by standard)**

**\* Lab/activities – Scientific Method**

Cellular Biology – relate the relationship of current cell knowledge to the methods of microscope development.

Self Review of Cellular Biology – Compare and contrast the prokaryotic and eukaryotic cells.

Microscope Utilization – relate the form and function of the nucleus to its component and the cell in general.

Histology – recognize ten types of tissues found in humans. (each tissue type requires a diagram in color)

BODY BUILDING PROJECT – semester long project

Relate cell to tissue to organ to organ system

<i>Unit #</i>	<i>Title</i>	<i>Allotted Time</i>	<i>Subunits</i>
Unit One	“Organization of the Human Body”	3 days 3 days 3 days 1 week	1.1 Basic Plan 1.2 Principles of Chemistry 1.3 Cellular Biology (Relate cell to tissue to organ to organ system) 1.4 Microscope Utilization Histology
Unit Two	“Supporting Framework and Movement”	1 week 1 week	2.1 Skeletal System 2.2 Muscular System
Unit Three	“Coordination and Control of the Body” DISSECTION	1 week 2 days	3.1 Nervous System 3.2 The Eye and Vision * Cow Eye Dissection 3.3 The Ears: Hearing and Equilibrium
Unit Four	“Digestion”	1 week	4.1 Digestive System 4.2 Food and Nutrition 4.3 Mouth, Pharynx, and Esophagus 4.4 The Stomach 4.5 The Intestines 4.6 Mouth, Pharynx, and Esophagus 4.7 The Stomach 4.8 The Intestines
Unit Five	“Respiration”	3 days	5.1 Respiratory System 5.2 Mechanics of Breathing
Unit Six	“Transport Systems”	1 week	6.1 Circulatory System 6.2 Lymphatic System
	DISSECTION	2 days	* Sheep Heart Dissection
Unit Seven	“Regulatory Systems”	2 days	7.1. Integumentary System 7.2 Regulation of Body Temperature 7.3 Metabolism 7.4 The Kidneys
Unit Eight	“Endocrine”	2 days	8.1 Endocrine System
Unit Nine	“Reproduction and Heredity”	3 days	9.1 Reproductive System
	DISSECTION	1 week	* Fetal Pig Dissection
			<b>FINAL EXAM</b>

#### **INSTRUCTIONAL STRATEGIES:**

Teacher will use of lectures, labs, dissections, activities, videos, and presentations to teach students. Teacher will guide students to begin their search for solutions to a particular problem or question by forming a hypothesis, a testable possible explanation for their observations.

**EVALUATION/ASSESSMENT OF STUDENTS:**

50% Tests

30% Lab Reports

10% Quizzes

10% Homework

**EVALUATION/ASSESSMENT OF CURRICULUM:**

**This course of study will be evaluated/assessed by instructional staff during the first year of implementation for the purpose of necessary revision at the end of the first year. In addition, this course of study will be reviewed according to the Five-Year Curriculum Review schedule (see attached).**

**RESOURCES/BIBLIOGRAPHY:**

Modern Human Physiology

Holt, 1987