



Pine Grove Area

SCHOOL DISTRICT

SCIENCE

ANATOMY

Human Anatomy & Physiology I

September 18, 2008

I. PHILOSOPHY

The Anatomy course of the Pine Grove Area School District has been structured to introduce, systematically and thematically, human histology, the integumentary system, the skeletal system, the muscular system, and the nervous system. The Anatomy course begins this process at the basic level. The course will allow for the accommodation of many learning styles, motivational levels, and academic abilities.

II. CORE CONCEPTS

1. Anatomical terminology– Define and utilize directional and positional terms that pertain to the human body. Define and apply homeostasis as it pertains the human body systems. Name the levels of structural organization that makes up the human body and explain how they are related. List functions that humans must perform to maintain life.
2. Human tissues – Define the term tissue. Identify and explain the role of any given human tissue type. Identify the locations where human tissues can be found.
3. Integumentary system – Understand the critical relationship between structure and function of this system under varying conditions and understand the various ways in which each system acts to maintain homeostasis in the body, which is how the body maintains stable internal conditions and responds to diseases/ disorders of the system.
4. Skeletal system - Understand the critical relationship between structure and function of this system under varying conditions and understand the various ways in which each system acts to maintain homeostasis in the body, which is how the body maintains stable internal conditions and responds to diseases/ disorders of the system.
5. Muscular system - Understand the critical relationship between structure and function of this system under varying conditions and understand the various ways in which each system acts to maintain homeostasis in the body, which is how the body maintains stable internal conditions and responds to diseases/ disorders of the system.
6. Nervous system - Understand the critical relationship between structure and function of this system under varying conditions and understand the various ways in which each system acts to maintain homeostasis in the body, which is how the body maintains stable internal conditions and responds to diseases/ disorders of the system.

III. COURSE OF STUDY

- A. Course Name: Anatomy
- B. Grade Level: 11/12
- C. Length of Course: 1 semester
 - 1. Frequency: Daily
 - 2. Duration: 42 minutes/class
- D. Academic Level: College Prep, Vo-tech, and Post-Secondary
- E. Credits: 0.5
- F. Prerequisites: Successful completion of Biology, Physical Science, and/or Chemistry with a grade of B or better.
- G. Course Description:

Human Anatomy & Physiology is an upper level science course that is designed to challenge those motivated students who are considering the medical field as a college major. Those choosing college majors, such as biology, biochemistry, pre-med., dentistry, nursing, or the allied health field etc should consider this course. .

The goal of this course is to instill in the minds of the students, a deep appreciation of the every-day functions of the human body. In doing so, the student will be able to discuss the significance of the link between structure and function. Taking this theme a step further, students will walk away from this course being able to describe how the major systems (integumentary, skeletal, muscular, and nervous system) of the body cope with imbalance. The major themes and concepts will follow the students as they move from one body system to the next. Students will also analyze the structure and function relationship of human tissue.

IV. CONTENT: Anatomy I

CORE CONCEPT 1: Anatomical terminology

MAJOR OBJECTIVE: Define and utilize directional and positional terms that pertain to the human body

CURRICULUM STANDARD:			
PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.A Explain the relationship between structure and function at all levels of organization. • Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.</p>	<p>Teacher will guide students to: explain that higher organizational levels are defined by lower levels and that each level becomes more specific.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none"> • Partner/group projects • Individuals during small group work • Individuals during whole group discussion • Oral question and answer • Independent activities • Class participation • Tests and quizzes 	<p>Textbook resources Computer programs/web sites Notebook Skeleton/Human torso model</p>
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure.</p>	<p>Teachers will guide students to: analyze the relationship of function to structure.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none"> • Partner/group projects • Individuals during small group work • Individuals during whole group discussion • Oral question and answer • Independent activities • Class participation • Tests and quizzes 	<p>Textbook resources Computer programs/web sites Notebook Skeleton/Human torso model</p>

CONTENT: Anatomy I

CORE CONCEPT 1: Anatomical terminology

MAJOR OBJECTIVE: Define and utilize directional and positional terms that pertain to the human body

CURRICULUM STANDARD:

PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.1.12.A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.</p> <ul style="list-style-type: none">Analyze and describe the function, interaction and relationship among subsystems and the system itself.	<p>Teachers will guide students to:</p> <p>differentiate between negative feedback and positive feedback loops and identify homeostatic controls as either of the two.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">Partner/group projectsIndividuals during small group workIndividuals during whole group discussionOral question and answerIndependent activitiesClass participationTests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Skeleton/Human torso model</p>
<p>PA Standard 3.3.12.A Explain the relationship between structure and function at all levels of organization.</p> <ul style="list-style-type: none">Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.	<p>Teachers will guide students to:</p> <p>use directional, anatomical terms and identify cavities of the body.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">Partner/group projectsIndividuals during small group workIndividuals during whole group discussionOral question and answerIndependent activitiesClass participationTests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Notebook</p> <p>Skeleton/Human torso model</p>

CONTENT: Anatomy I

CORE CONCEPT 2: Human tissues

MAJOR OBJECTIVE: Define the term tissue

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms.</p> <ul style="list-style-type: none">• Evaluate relationships between structure and functions of different anatomical parts given their structure.	<p>Teacher will guide students to:</p> <p>identify the four major categories of human tissue as well the subcategories of each.</p> <p>explain the general function of each tissue type and describe where each could be found in the body.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Microscopes</p> <p>Prepared histology slides</p>

CONTENT: Anatomy I**CORE CONCEPT 3:** Integumentary system**MAJOR OBJECTIVE:** Understand the critical relationship between structure and function

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms.</p> <ul style="list-style-type: none"> Evaluate relationships between structure and functions of different anatomical parts given their structure. 	<p>Teacher will guide students to:</p> <p>identify the major tissue types of and the appendages of skin and explain the function.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none"> Partner/group projects Individuals during small group work Individuals during whole group discussion Oral question and answer Independent activities Class participation Tests and quizzes 	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Microscopes</p> <p>Prepared histology slides</p> <p>Chicken skin</p>
<p>PA Standard 3.1.12.A Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.</p> <ul style="list-style-type: none"> Analyze and describe the function, interaction and relationship among subsystems and the system itself. 	<p>Teacher will guide students to:</p> <p>explain the role of skin in homeostasis.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none"> Partner/group projects Individuals during small group work Individuals during whole group discussion Oral question and answer Independent activities Class participation Tests and quizzes 	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p>

CONTENT: Anatomy I

CORE CONCEPT 3: Integumentary system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 10.1.12.B Evaluate factors that impact the body systems and apply protective/preventive strategies.</p> <ul style="list-style-type: none">• fitness level• environment (e.g., pollutants, available health care)• health status (e.g., physical, mental, social)• nutrition	<p>Teacher will guide students to: become more familiar with various skin diseases.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes.	<p>Textbook resources Computer programs/web sites Journal or notebook Power point or Publisher</p>

CONTENT: Anatomy I

CORE CONCEPT 4: Skeletal system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.A Explain the relationship between structure and function at all levels of organization. • Explain and analyze the relationship between structure and function at the molecular, cellular and organ-system level.</p>	<p>Teacher will guide students to: identify all bones of the human body. Identify the different types of bones and the subdivision of the skeleton.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook Microscopes Skeleton</p>
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure</p>	<p>Teacher will guide students to: identify the major anatomical areas of the long bone and what function each area performs.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook Microscopes Skeleton</p>

CONTENT: Anatomy I

CORE CONCEPT 4: Skeletal system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms.</p> <ul style="list-style-type: none">• Evaluate relationships between structure and functions of different anatomical parts given their structure	<p>Teacher will guide students to:</p> <p>explain bone formation and degeneration.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p>
<p>PA Standard 10.1.12.A Evaluate factors that impact growth and development during adulthood and late adulthood.</p> <ul style="list-style-type: none">• aging process	<p>Teacher will guide students to:</p> <p>differentiate between the skeletal differences due to age, gender, and/or race.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Microscopes</p> <p>Skeleton</p> <p>Various skulls</p>

CONTENT: Anatomy I

CORE CONCEPT 5: Muscular system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure</p>	<p>Teacher will guide students to: differentiate and identify skeletal muscle, cardiac muscle, and smooth muscle.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook Prepared slides of muscle tissue Microscopes</p>
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure</p>	<p>Teacher will guide students to: explain role and identify the parts and/or divisions of a skeletal muscle.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes.	<p>Textbook resources Computer programs/web sites Journal or notebook Muscle diagrams Chicken muscle</p>

CONTENT: Anatomy I

CORE CONCEPT 5: Muscular system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 10.1.12.A Evaluate factors that impact growth and development during adulthood and late adulthood.</p> <ul style="list-style-type: none">• aging process	<p>Teacher will guide students to: analyze the effects of various environmental conditions on skeletal muscle.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook</p>

CONTENT: Anatomy I

CORE CONCEPT 6: Nervous system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure</p>	<p>Teacher will guide students to: list the functions of the nervous system and the functions of each division of the nervous system.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes.	<p>Textbook resources Computer programs/web sites Journal or notebook</p>
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure</p>	<p>Teacher will guide students to: differentiate the different regions of the typical neuron and the functions of each.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook</p>

CONTENT: Anatomy I

CORE CONCEPT 6: Nervous system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms.</p> <ul style="list-style-type: none">• Evaluate relationships between structure and functions of different anatomical parts given their structure	<p>Teacher will guide students to: detail the steps in nerve impulse transmission</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook</p>
<p>PA Standard 10.1.12.B Evaluate factors that impact the body systems and apply protective/preventive strategies.</p> <ul style="list-style-type: none">• fitness level• environment (e.g., pollutants, available health care)• health status (e.g., physical, mental, social)• nutrition	<p>Teacher will guide students to: will explore maintenance of homeostasis and homeostatic imbalances.</p>	<p>Teacher evaluation of:</p> <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	<p>Textbook resources Computer programs/web sites Journal or notebook</p>

CONTENT: Anatomy I

CORE CONCEPT 6: Nervous system

MAJOR OBJECTIVE: Understand the critical relationship between structure and function of this system

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 3.3.12.B Analyze the chemical and structural basis of living organisms. • Evaluate relationships between structure and functions of different anatomical parts given their structure	Teacher will guide students to: list the types of general sensory receptors and describe the general functions and examine specialized sensory reception throughout the body.	Teacher evaluation of: <ul style="list-style-type: none">• Partner/group projects• Individuals during small group work• Individuals during whole group discussion• Oral question and answer• Independent activities• Class participation• Tests and quizzes	Textbook resources Computer programs/web sites Journal or notebook Snell eye chart Cow eye (dissection kit)

V. EXPECTED LEVELS OF ACHIEVEMENT

A. Students are expected to reach the introductory college level of achievement in human anatomy. These skills include all of those noted in the specific content area of this curriculum.

B. Grading system for all kindergarten technology classes is as follows:

Grading Scale	
A	100%-90%
B	89%-80%
C	79%-70%
D	69%-60%
F	59% & below

C. Each student's grade will be determined at the conclusion of each marking period followed by a final exam at the end of the semester.