

## CORNELL NOTES

Directions: You must create a minimum of 5 questions in this column per page (average). Use these to study your notes and prepare for tests and quizzes. Notes will be stamped after each assigned sections (if completed) and turned in to your teacher at the end of the Unit for scoring.

# UNIT 6: PHYSIOLOGY

## Chapter 33: Protection, Support, and Movement

### I. Skeletal System (33.1)

A. Skeletal system is organ system that \_\_\_\_\_ organs and \_\_\_\_\_ you body

1. Includes **bones** and \_\_\_\_\_ **tissue** that holds bones together

2. \_\_\_\_\_ **bones**

a. **Appendicular skeleton**- part of skeleton that allows body to \_\_\_\_\_ (legs, arms, feet, and hands)

b. **Axial skeleton**- bones in trunk and head of body

1). \_\_\_\_\_ **weight** of body

2). \_\_\_\_\_ internal organs and tissues

3. \_\_\_\_\_ - flexible connective tissue found between your bones

a. \_\_\_\_\_ bones and allows for smooth movement

b. Sometimes connects two \_\_\_\_\_

B. Bones connect to form joints

1. \_\_\_\_\_ - place where two bones meet.

a. Allows for different amount of \_\_\_\_\_

b. Some do not allow movement

c. Several types of joints (Gliding, Pivot, Ball-and-socket, saddle, and hinge joints)

2. \_\_\_\_\_ - long, flexible band of connective tissue that connects two bones across a joint

C. Bones are living \_\_\_\_\_

1. Bones also produce **red** \_\_\_\_\_ **cells** and store \_\_\_\_\_

2. Two types of bone structure

a. \_\_\_\_\_ **bone**- hard, dense layer that protects against jolts and bumps (found on outside)

b. \_\_\_\_\_ **bone**- less dense that is surrounded by compact bone

1). Holds and protects **red** or **yellow bone**  
\_\_\_\_\_

2). Red bone marrow produces red blood cells and yellow stores \_\_\_\_\_

### 3. Bone growth

a. Human embryos do not have bones at first. Skeleton made of \_\_\_\_\_

b. Over time replaced by \_\_\_\_\_

c. Bones form when cells called **osteoblasts** secrete chemicals that cause cartilage to \_\_\_\_\_.

1). Process called \_\_\_\_\_

2). Bones grow from their \_\_\_\_\_

d. \_\_\_\_\_ is continually being deposited and removed from your bones.

1). Bones strongest in person between 18-30 years old

2). After that, bones lose \_\_\_\_\_ when calcium taken to be used elsewhere in the body

## II. Muscular System (33.2)

A. Body system that \_\_\_\_\_ bones at joints and \_\_\_\_\_ substances such as blood, food, and fluids throughout the body

1. Contain many \_\_\_\_\_ to power contractions

2. Muscle contractions help regulate **body**  
\_\_\_\_\_

3. Cells form muscle fibers that \_\_\_\_\_, or shorten, when stimulated by nervous system and produce  
\_\_\_\_\_

B. Humans have \_\_\_\_\_ types of muscle

1. \_\_\_\_\_ **muscle**- attaches to skeleton by **tendons**

a. \_\_\_\_\_-connective tissue begins in muscle and continues into the bone or other muscle

b. Most skeletal muscle under voluntary \_\_\_\_\_

c. Two types of muscle fibers

1). \_\_\_\_\_ **twitch fibers**- respond quickly to nerve impulse (quick, sudden movements)

2). \_\_\_\_\_ **-twitch fibers**- respond slowly and responsible for sustained movements

2. **Smooth muscle**- found in many body systems

a. \_\_\_\_\_ under voluntary control

b. Surrounds \_\_\_\_\_ vessels and internal organs

c. \_\_\_\_\_ food through digestive tract, empties bladder, controlling blood flow

3. **Cardiac muscle**- found only in \_\_\_\_\_

a. Use huge amounts of \_\_\_\_\_ (have more mitochondria than skeletal muscle cells)

b. Under \_\_\_\_\_ control

C. Muscle contraction

1. Controlled by \_\_\_\_\_ system

2. Muscles composed of long strands of \_\_\_\_\_

a. **Filaments** are arranged in regular pattern

b. \_\_\_\_\_ and \_\_\_\_\_ filaments work together to cause contraction

c. \_\_\_\_\_ ions stimulate contractions

### III. Integumentary System (33.3)

A. Includes \_\_\_\_\_, hair, nails, oil glands, and sweat glands

1. \_\_\_\_\_ you body

2. Help maintain \_\_\_\_\_

B. All tissues of integumentary system housed in skin

1. Made up of three layers

a. \_\_\_\_\_ - outermost layer

1). First layer of protection

2). Contains pores which sweat, salts, and oils can leave the body

3). Surface consists mostly of \_\_\_\_\_ cells that continually flake off

4). Produces protective \_\_\_\_\_ such as **keratin** and **melanin**

a). \_\_\_\_\_ builds up in areas that need extra protection (soles of feet, etc.)

b). \_\_\_\_\_ - dark pigment that absorbs harmful UV sunlight rays

b. \_\_\_\_\_ - layer under epidermis

1). Contains glands and cells that produce **elastin** and **collagen**

2). Contains \_\_\_\_\_ **follicles**

3). \_\_\_\_\_ **glands**- help to control body temperature

4) **Sebaceous glands**- produce \_\_\_\_\_ that lubricate the skin and keep it waterproof

c. **Subcutaneous** \_\_\_\_\_ - layer of fat cells protects and cushions larger blood vessels and neurons. It also \_\_\_\_\_ the muscles and internal organs