Section 1: Skeletal System

Study Guide A

KEY CONCEPT
The skeletal system includes bones and tissues that are important for supporting, protecting, and moving your body.

VOCABULARY
skeletal system  vertebrae  ligament
appendicular skeleton  cartilage  calcification
axial skeleton  joint

MAIN IDEA: Your skeletal system is made up of the appendicular and axial skeletons.

Fill in the blanks with the word or phrase that best completes each sentence.

1. The skeletal system ___________________ the organs and __________________ the body.
2. The __________________ skeleton allows your body to move.
3. The __________________ skeleton supports the weight of the body and protects internal tissues and organs.

Fill in the Concept Map about the parts of the skeletal system.

[Diagram of skeletal system]

4. _________
skeleton

5. _________
skeleton

6. _________
legs, arms, feet, and pelvic and shoulder girdles

7. _________

8. _________

9. _________
Circle the word that best completes the sentence.

10. The **vertebrae** / **cartilage** surround and protect the spinal cord.

11. **Vertebrae** / **Cartilage** connects bones and protects them from wear.

**MAIN IDEA:** Bones connect to form joints.

**Fill in the blank with the word or phrase that best completes the sentence.**

12. The place where two bones meet is a _________________.

13. _________________ joints allow partial movement and are found between the vertebrae, and where the ribs meet the breastbone.

14. Synovial joints are held together with long, flexible bands of connective tissue called _________________.

**MAIN IDEA:** Bones are living tissue.

**Circle the word that best completes the sentence.**

15. **Compact** / **Spongy** bone tissue is hard and dense.

16. **Compact** / **Spongy** bone tissue is porous and contains the bone marrow.

17. Red bone marrow produces **ligaments** / **blood cells**.

**Vocabulary Check**

**Fill in the blank with the vocabulary term that best completes the sentence.**

18. The prefix *calci*-, means “calcium.” The process of creating hard bone by combining collagen and calcium phosphate is called _________________.

19. _________________, _________________, and _________________ are all places where two bones come together.
Section 2: Muscular System

Study Guide A

KEY CONCEPT
Muscles are tissues that can contract, enabling movement.

VOCABULARY

<table>
<thead>
<tr>
<th>muscular system</th>
<th>tendon</th>
<th>myofibril</th>
<th>myosin</th>
</tr>
</thead>
<tbody>
<tr>
<td>muscle fiber</td>
<td>smooth muscle</td>
<td>sarcomere</td>
<td></td>
</tr>
<tr>
<td>skeletal muscle</td>
<td>cardiac muscle</td>
<td>actin</td>
<td></td>
</tr>
</tbody>
</table>

MAIN IDEA: Humans have three types of muscle.

Fill in the chart with the names of the three different types of muscle.
Refer to Figure 2.2

<table>
<thead>
<tr>
<th>Type of Muscle</th>
<th>Attaches to/ Found in</th>
<th>Moves</th>
<th>Voluntary or Involuntary?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>attached to bones by tendons</td>
<td>limbs, hands, feet, eyelids, spinal cord</td>
<td>mostly voluntary</td>
</tr>
<tr>
<td>2.</td>
<td>arteries, intestines</td>
<td>food through digestive system</td>
<td>involuntary</td>
</tr>
<tr>
<td>3.</td>
<td>heart</td>
<td>blood through the circulatory system</td>
<td>involuntary</td>
</tr>
</tbody>
</table>

MAIN IDEA: Muscles contract when the nervous system causes muscle filaments to move.

Fill in the blank with the word or phrase that best completes the sentence.

4. Muscle fibers called ________________ shorten when a muscle is contracted.

5. Muscle fibers are divided into sections called ________________.
6. Myosin filaments are protein fibers that pull on protein filaments called ________________ during a muscle contraction.

7. The place where a motor neuron attaches to a muscle is called the _________________.

8. Open ________________ channels stimulate myosin filaments.

9. Actin and ________________ separate when muscles relax.

Vocabulary Check

Fill in the blank with the vocabulary term that best completes the sentence.

10. A type of connective tissue that joins bones and muscles is a _________________.

11. ________________ muscle cells have more mitochondria than the cells of smooth muscle or skeletal muscle.
Section 3: Integumentary System

Study Guide A

KEY CONCEPT
The integumentary system has many tissues that protect the body.

VOCABULARY

<table>
<thead>
<tr>
<th>integumentary system</th>
<th>epidermis</th>
<th>hair follicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>keratin</td>
<td>dermis</td>
<td></td>
</tr>
</tbody>
</table>

MAIN IDEA: The integumentary system helps maintain homeostasis.

Fill in the blank with the word or phrase that best completes the sentence.

1. The ______________________ is an organ system that surrounds and protects all other organ systems.
2. Acidic oils that help prevent bacterial and fungal infections are secreted by ______________________ in the skin.
3. A tough, waterproof protein called ______________________ forms hair and nails.
4. ______________________ glands in the skin help maintain homeostasis by helping to control body temperature.
5. ______________________ contains water, salts, and urea.
MAIN IDEA: The integumentary system consists of many different tissues.

Complete the chart below with the correct name of each layer of skin.

<table>
<thead>
<tr>
<th>Layer of Skin</th>
<th>Structures It Contains</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>dead skin cells covering constantly dividing living cells</td>
<td>first layer of protection for deeper layers of skin</td>
</tr>
<tr>
<td></td>
<td>pores through which sweat, salts, and oils are released</td>
<td>production of keratin, melanin, and other protective proteins</td>
</tr>
<tr>
<td></td>
<td>cells that produce keratin and melanin</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>sweat glands</td>
<td>produces sweat and oils that helps lubricate skin, help prevent friction when parts of the body rub together, make skin waterproof</td>
</tr>
<tr>
<td></td>
<td>oil glands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hair follicles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cells that produce elastin and collagen</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>fat cells</td>
<td>cushions blood vessels and neurons</td>
</tr>
<tr>
<td></td>
<td>connective tissue</td>
<td>insulates muscles and organs from temperature changes</td>
</tr>
</tbody>
</table>

Circle the word or phrase that best completes the sentence.

9. The epidermis contains cells called melanocytes / hair follicles that produce a pigment called melanin / keratin. This pigment causes tanning and helps protect cells from harmful sweat / ultraviolet radiation.

Vocabulary Check

Fill in the blank with the vocabulary term that best completes the sentence.

10. The prefix epi- means “above.” The _____________________ is the top layer of skin.

11. The protective protein that helps builds up a thicker layer of skin in places like the soles of the feet is _____________________.

12. The word follicle means “cavity of cells.” _____________________ are pits or cavities beneath the skin surface that form keratin.