CHAPTER 13
Bones, Muscles, Skin

SECTION 1

- Body Organization and Homeostasis
Levels of Organization

List the 4 levels from Basic to Complex...

1. __________
2. __________
3. __________
4. __________
CELLS

- Basic unit in living thing
- Main Parts:
  - ________ = outside boundary of cell
  - ________ = control center
  - ________ = jellylike substance inside cell
Tissues

- _______ = contracts (or shortens) to create movement
- _______ = provides support for your body and connects all its parts
- _______ = carries messages back and forth between the brain and spinal cord
- _______ = protective covering (skin) as well as lines cavities and hollow spaces
Systems and Functions

- Urinary system
- Reproductive system
- Integumentary system
- Skeletal system
- Respiratory system
- Digestive system
- Lymphatic system
- Endocrine system
- Circulatory system
- Nervous system
- Muscular system
Homeostasis

Examples:

- thirst + urinating occurs for ______ control
- hunger occurs for __________ control
- shivering + sweating for __________ control

_________________________ = reaction of a threat to homeostasis maintenance
Energy

Cellular Respiration = source of energy for cells

Write the chemical equation for cellular respiration:

___________ + ___________ → _______ + ___________ + ATP
LIST THE 5 FUNCTIONS OF THE SKELETAL SYSTEM

1. ____________

2. ____________

3. ____________

4. ____________

5. ____________
IN THE NEXT FEW SLIDES, CAN YOU LABEL THE BONE BELOW ACCORDING TO THE DESCRIPTIONS PROVIDED?
BONE PARTS: PERIOSTEUM

“Peri” means around, osteum means bone

It covers & protects

growth & repair

The blood supply enters this layer of protections
COMPACT BONE

Dense outside of bone:
- Ca & P (hardness)
- elastic fibers (flexibility)
SPONGY BONE
open spaces (lightweight)
contains red marrow
• makes blood cells
MARROW CAVITY
hollow center
contains yellow marrow
• fat storage
CARTILAGE

Flexible

absorbs shock; cushions

makes movement easier
LONG BONE ANSWER KEY

Blood vessel

Compact bone

Marrow cavity

Spongy bone

Cartilage

Periosteum
JOINT = 2 OR MORE BONES COMING TOGETHER

Fixed
- Are ____________
- ex: skull, teeth

Movable
1. ___________ head+neck
2. ___________ - shoulder
3. ___________ - elbow
4. ___________ - wrist
5. ___________ - base of thumb
6. ___________ - base of fingers
LIGAMENTS - TOUGH CONNECTIVE TISSUE THAT CONNECTS BONE TO BONE
1. What type of joint is this?
2. Which bones are involved?
GIVE THE GENERAL NAME OF THE BONES IN THE X-RAY BELOW
MUSCULAR SYSTEM
Skeletal Muscle

- moves bones - How?
- Striated - what does that mean?
- voluntary
- contraction only - work in pairs
- react quickly; tire easily
- Multi-nucleated - Why?
Smooth Muscle

- Moves internal organs
  - breathing, blood pressure, digestive system
- Not striated
- Involuntary
- Reacts slowly; tires slowly
Cardiac Muscle

- Heart muscle
- Striated and branched
- Involuntary
- Reacts quickly
- Does not tire
The Skin
Functions of the Skin

1. Protection
2. Maintaining Temperature
3. Eliminating Wastes
4. Gathering Info
5. Producing Vitamin D

A deficiency of vitamin D or an inability to utilize vitamin D may lead to a condition called rickets, a weakening and softening of the bones brought on by extreme calcium loss.
Layers of the Skin

A. Epidermis
   A. Outer layer of skin
   B. Contains Melanin
      A. Pigment that gives skin its color

B. Dermis
   A. Inner layer of skin
   B. Contains Pores (openings for sweat)
   C. Contains Follicles (hair growth structure)
Caring for Your Skin

- **Healthful Diet** - how could this affect skin health?
- **Keeping Skin Clean** - how could this affect skin health?
- **Limiting Sun Exposure** - why? How does sun exposure affect our skin?

<table>
<thead>
<tr>
<th>Normal Mole</th>
<th>Melanoma</th>
<th>Sign</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Asymmetry</td>
<td>when half of the mole does not match the other half</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Border</td>
<td>when the border (edges) of the mole are ragged or irregular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Color</td>
<td>when the color of the mole varies throughout</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diameter</td>
<td>if the mole’s diameter is larger than a pencil’s eraser</td>
</tr>
</tbody>
</table>

Photographs Used By Permission: National Cancer Institute