Chp. 6: Bones and Skeletal Tissue
Student Worksheet

1. The skeletal system is composed of bones, _____, _____, and _____.

2. What are 5 functions of the skeletal system?

3. Besides osseous tissue (connective tissue with hard calcium phosphate matrix), name 3 specific tissues that make up a bone.

4. _____ is the double-layered sheath of connective tissue covering cartilage.

5. Would you suspect bone or cartilage to heal faster? Give an explanation.

6. Describe 2 ways in which cartilage grows.

7. Know the anatomy of a long bone. (See text. Fig. 6.3, p. 180)
a. _____ = dense, white osseous tissue (on the outside)
b. _____ = another name for spongy bone
c. _____ = the lattice of slender rods, plates, and spines making up spongy bone
d. _____ = anatomical name for shaft of a long bone
e. _____ = anatomical name for ends of a long bone
f. _____ = cavity of a long one containing red bone marrow
g. _____ = another name for red bone marrow filling long bone cavity in a child (produces erythrocytes)
h. _____ = production of red blood cells
i. _____= the bone marrow filling the long bone cavity in young to middle-aged adults
j. _____ = the reddish jelly filling the long bone cavity in old age
k. _____ = hyaline cartilage covering the ends of bones at a joint
l. _____ = tiny holes in bone through which blood vessels pass
m. _____ = the lining of the internal surface of a bone
n. _____ = the sheath covering the external surface of a bone
o. _____ = collagen fibers from tendons that penetrate into bone

8. Distinguish between an epiphyseal plate and an epiphyseal line:

9. Know the microscopic anatomy of compact bone. (Refer to text. Fig. 6.6, p. 183)
a. _____ = layers of matrix concentrically arranged around a central naversian canal
b. _____ = the basic structural unit of compact bone
c. _____ = canals that lead blood vessels from nutrient foramina on the bone surface to the haversian canals
d. _____ = small cavities in which osteocytes reside
e. _____ = little canals which connect the lacunae of all osteocytes in an osteon together, allowing for nutrients and wastes to pass from one osteocyte to the next.

10. Bone matrix is 65% inorganic and 35% organic. The inorganic matter of bone matrix is mostly a crystallized calcium phosphate salt called _____. The organic matter of bone is primarily _____ and proteoglycans.

11. What properties do collagen and minerals give to bone?

12. Name the 4 types of bone cells, and describe their structure and function.

13. Distinguish between the 2 processes of bone formation (Refer to text. p. 184-185)
Intramembranous ossification Endochondral Ossification

14. Identify the histological zones of transformation from cartilage to bone apparent in the metaphysis of a developing long bone, and highlight the major distinctions between them (See text. Fig. 6.9, p. 186)

15. How do nutrition and hormones affect bones?

16. What is bone remodeling and when does it occur?

17. Calcium phosphate homeostasis is regulated by three hormones: _____, _____, and _____. Know the important actions of each hormone.

18. A deficiency of blood calcium is called _____, and an excess of blood calcium is called _____.

19. Vitamin D deficiency results in abnormal softness of bones, a condition called _____ in children and _____ in adults.

20. Explain how a bone fracture is repaired (See text. Fig. 6.14, p. 191).

21. _____ is the branch of medicine that deals with the prevention and correction of injuries and disorders of bones, joints, and muscles.

22. Understand the following conditions: Osteoporosis, osteomyelitis, Paget's disease, Gigantism, Acromegaly, pituitary dwarfism, achondroplastic dwarfism.

23. Read about Homeostatic interrelationships between the skeletal system and other body systems (p. 197-198).

Chp. 8 – Joints

1. Another name for a joint or the site where bones meet is _____.

2. Joints are classified on the basis of their structure and their function. Structurally, there are _____, _____ and _____ joints. Give examples of each.

3. Functionally, there are 3 classifications of joints:
   a. _____ = immovable joints
   b. _____ = slightly moveable joints
   c. _____ = freely moveable joints

4. Describe the general structure of a synovial joint.

5. Distinguish between bursae and tendon sheaths.

6. Demonstrate the following movements.
   a. flexion, extension, hyperextension
   b. dorsiflexion, plantar flexion
   c. abduction, adduction
   d. circumduction, rotation
   e. supination, pronation
   f. inversion, eversion
   g. protraction, retraction
   h. elevation, depression
   i. opposition, reposition
   j. lateral and medial excursion

7. List the 6 major categories of synovial joints, and give an example of each.

8. Provide the anatomical name for the following joints:
   a. knee joint

   b. shoulder joint

   c. hip joint

   d. elbow joint

   e. jaw joint

9. a. Which body joint is the most susceptible to sports injuries?
   b. What are the 3 C's?

10. What is the function of the medial and lateral menisci of the knee?

11. What is the function of the glenoid labrum?

12. The _____ is a band of dense connective tissue that attaches the acetabulum to the fovea capitis of the head of the femur.

13. Briefly describe the following common joint injuries:
   a. sprain

   b. cartilage injury

   c. dislocation

14. Distinguish between osteoarthritis, rheumatoid arthritis, and gout.