NAME _____

LAB TIME/DATE 8:30am Tues/Thurs Dr. St. Laurent

REVIEW SHEET EXERCISE 9

Overview of the Skeleton: Classification and Structure of Bones and Cartilages

Bone Markings

1. Match the terms in column B with the appropriate description in column A.

	Column A	Column B
_____	1. sharp, slender process*	a. condyle
_____	2. small rounded projection*	b. crest
_____	3. narrow ridge of bone*	c. epicondyle
_____	4. large rounded projection*	d. fissure
_____	5. structure supported on neck†	e. foramen
_____	6. armlike projection†	f. fossa
_____	7. rounded, articular projection‡	g. head
_____	8. narrow opening‡	h. meatus
_____	9. canal-like structure‡	i. process
_____	10. round or oval opening through a bone‡	j. ramus
_____	11. shallow depression†	k. sinus
_____	12. air-filled cavity	l. spine
_____	13. large, irregularly shaped projection*	m. trochanter
_____	14. raised area on or above a condyle*	n. tubercle
_____	15. projection or prominence	o. tuberosity

*a site of muscle attachment
†takes part in joint formation
‡a passageway for nerves or blood vessels

Classification of Bones

2. The four major anatomical classifications of bones are long, short, flat, and irregular. Which category has the least amount of spongy bone relative to its total volume? _____

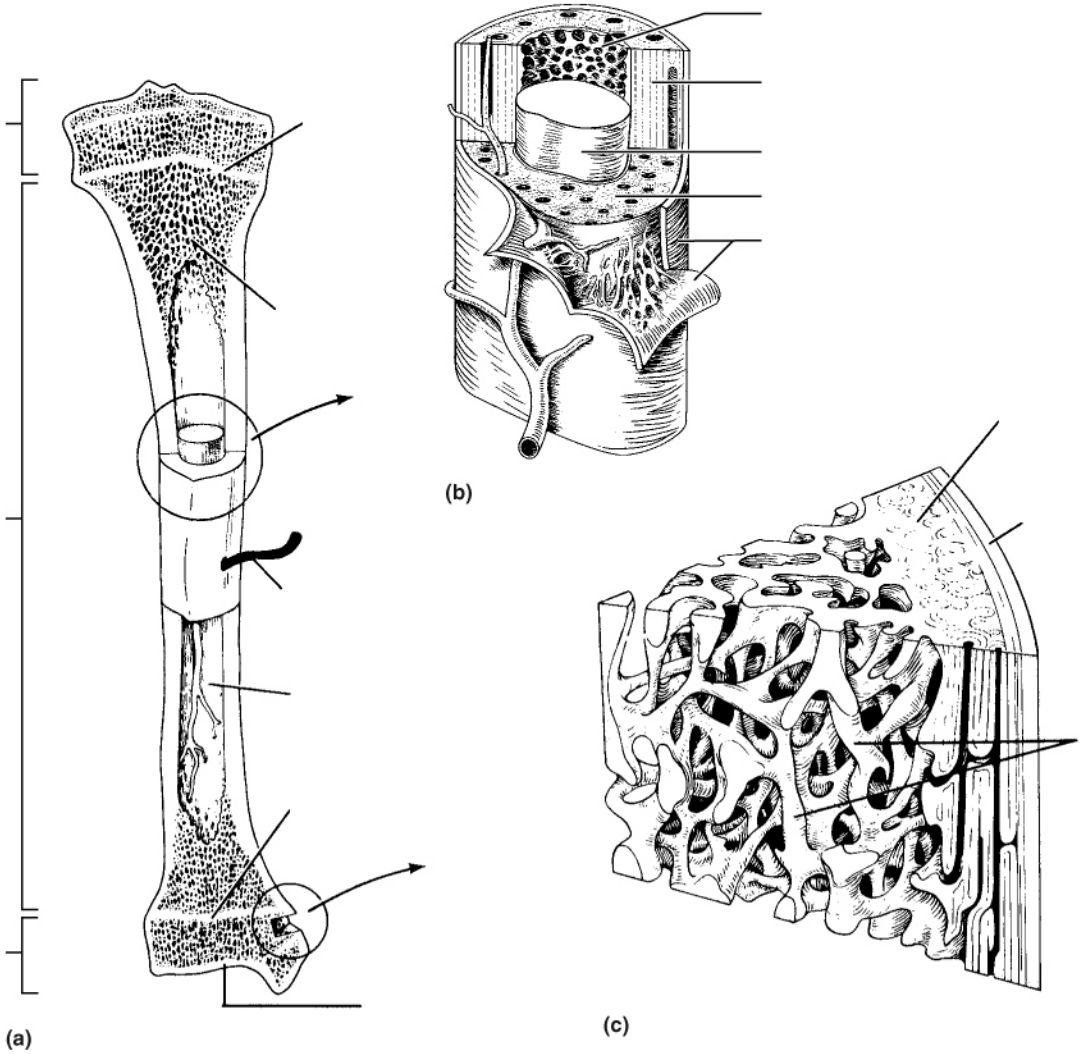
3. Place the name of each labeled bone in Figure 9.1, page 112, into the appropriate column of the chart here.

Long	Short	Flat	Irregular

Gross Anatomy of the Typical Long Bone

4. Use the terms below to identify the structures marked by leader lines and braces in the diagrams (some terms are used more than once).

Key:
a. articular cartilage
b. compact bone
c. diaphysis
d. endosteum
e. epiphyseal line
f. epiphysis
g. medullary cavity
h. nutrient artery
i. periosteum
j. red marrow cavity
k. trabeculae of spongy bone
l. yellow marrow



5. Match the terms in question 4 with the information below.

_____ 1. contains spongy bone in adults

_____ 2. made of compact bone

_____ 3. site of blood cell formation

_____, _____ 4. major submembranous site of osteoclasts

_____ 5. scientific term for bone shaft

_____ 6. contains fat in adult bones

_____ 7. growth plate remnant

_____ 8. major submembranous site of osteoblasts

6. What differences between compact and spongy bone can be seen with the naked eye? _____

_____

7. What is the function of the periosteum? _____

_____

Microscopic Structure of Compact Bone

8. Trace the route taken by nutrients through a bone, starting with the periosteum and ending with an osteocyte in a lacuna.

Periosteum → _____ → _____

_____ → _____ → osteocyte

9. Several descriptions of bone structure are given below. Identify the structure involved by choosing the appropriate term from the key and placing its letter in the blank. Then, on the photomicrograph of bone on the right (208×), identify all structures named in the key and bracket an osteon.

Key: a. canaliculi b. central canal c. concentric lamellae d. lacunae e. matrix

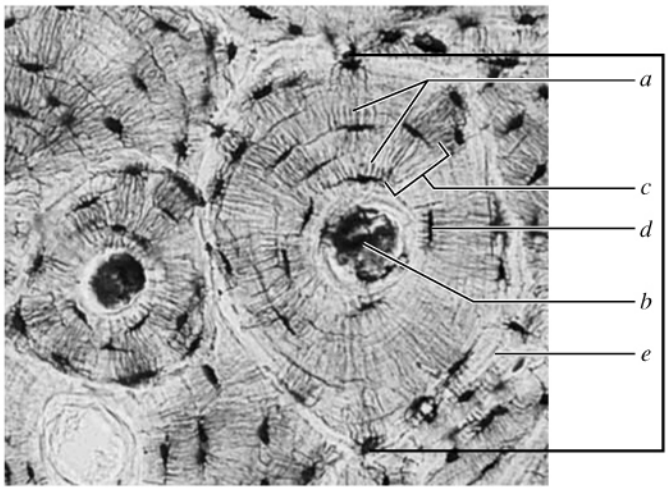
_____ 1. layers of bony matrix around a central canal

_____ 2. site of osteocytes

_____ 3. longitudinal canal carrying blood vessels, lymphatics, and nerves

_____ 4. minute canals connecting osteocytes of an osteon

_____ 5. inorganic salts deposited in organic ground substance



Chemical Composition of Bone

10. What is the function of the organic matrix in bone? _____

11. Name the important organic bone components. _____

12. Calcium salts form the bulk of the inorganic material in bone. What is the function of the calcium salts?

_____

13. Baking removes _____ from bone. Soaking bone in acid removes _____.

Ossification: Bone Formation and Growth in Length

14. Compare and contrast events occurring on the epiphyseal and diaphyseal faces of the epiphyseal plate.

Epiphyseal face: _____

Diaphyseal face: _____

Cartilages of the Skeleton

15. Using the key choices, identify each type of cartilage described (in terms of its body location or function) below.

Key: a. elastic b. fibrocartilage c. hyaline

_____ 1. supports the external ear

_____ 2. between the vertebrae

_____ 3. forms the walls of the voice box (larynx)

_____ 4. the epiglottis

_____ 5. articular cartilages

_____ 6. meniscus in a knee joint

_____ 7. connects the ribs to the sternum

_____ 8. most effective at resisting compression

_____ 9. most springy and flexible

_____ 10. most abundant