

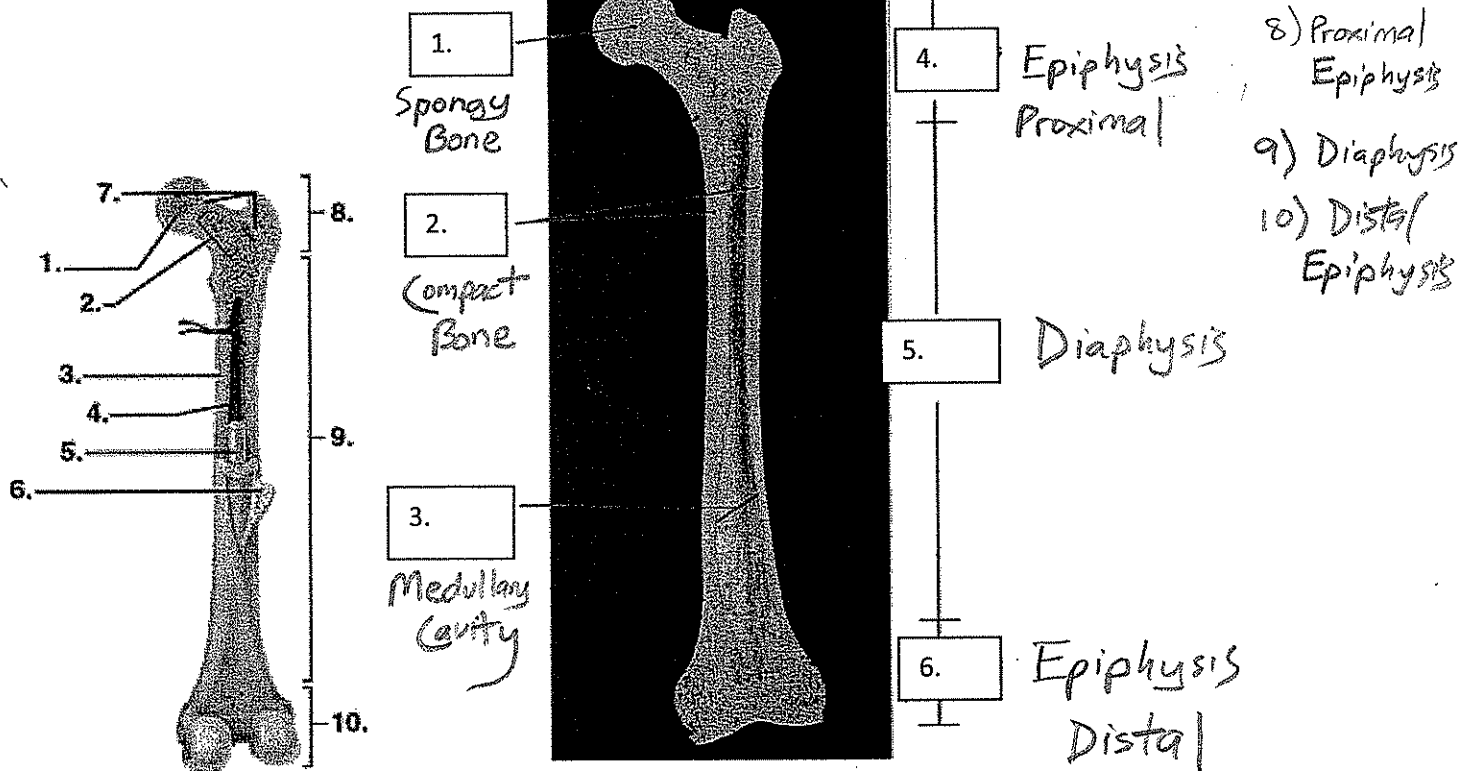
## DIRECTIONS

You will have ten minutes to complete the following tasks at each station. Each person in your group must perform each task.

### Station 1:

Label the diagrams of the long bone. Use the following words for Fig. 11.1: distal epiphysis, proximal epiphysis, diaphysis, spongy bone, compact bone, yellow marrow, medullary cavity, articular cartilage, periosteum.

- 1) Proximal Epiphysis or Spongy Bone    2) Spongy Bone    3) Compact Bone  
4) Medullary Cavity    5) Yellow Marrow    6) Periosteum    7) Epiphyseal Line



### Station 2:

A. Locate the following structures on the long bones with the pins numbered (1-6): diaphysis, epiphysis (proximal and distal), compact bone, spongy bone, medullary cavity, & articular cartilage

1. Medullary Cavity
2. Diaphysis
3. Compact Bone
4. Spongy Bone
5. Epiphysis
6. Articular Cartilage

**B. Where would you find the following:**

Periosteum Fibrous membrane covering outer surface of bone

Endosteum Inner membrane lining inside bone

Red marrow In spongy bone / End of Long Bones + Diploë of Flat Bones in Adults

Yellow marrow. = Medullary Cavity of Long Bones (in Diaphysis)

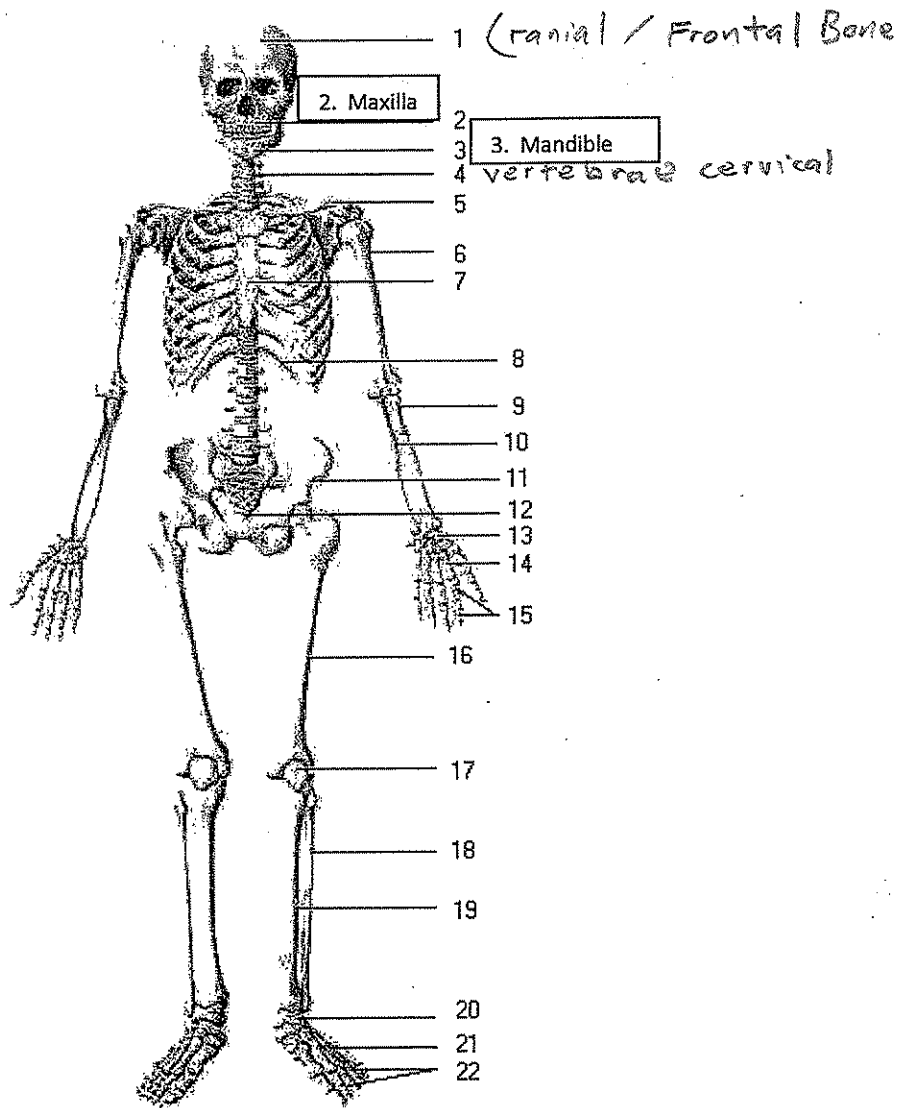
**Station 3:**

Organize the bones into groups based on their shape classification. Complete the following chart:

	LONG	SHORT	FLAT	IRREGULAR
Definition	Longer than wide	Cube-Like Length + Width close to equal	Thin, Flattened Usually a little bit curved	Elaborate Shapes typically with many processes and bone markings
Examples	Limbs - Arm Bones Tibia Leg Bones Femur Fibula Radius phalanges Ulna Humerus	Carpals Tarsals (Patella)	Ribs Scapula Many Cranial Bones (Patella)	Vertebrae Pelvis

### Station 6:

At this station, you will be introduced to the whole skeleton. On the diagram, color the appendicular skeleton red and the axial skeleton blue. Using your text book, match the bone with the correct name by placing the number on the diagram next to the name.



- 5) Clavicle
- 6) Humerus
- 7) Sternum
- 8) rib
- 9) Radius
- 10) Ulna
- 11) Coxal (Hip) Ilium
- 12) Coccyx
- 13) Carpals
- 14) Metacarpals
- 15) Phlanges
- 16) Femur
- 17) Patella
- 18) Fibula
- 19) Tibia
- 20) Tarsals
- 21) Metatarsals
- 22) Phlanges

### Station 7: Can be done during the lab during any wait time.

You will be working on your post-lab questions at this station. Please read all questions carefully and answer completely.

NAME \_\_\_\_\_

LAB TIME/DATE \_\_\_\_\_

# REVIEW SHEET

## EXERCISE

# 7

## Overview of the Skeleton

### Bone Markings

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

	Column A	Column B
<u>Spine</u>	1. sharp, slender process	condyle
<u>Tubercle</u>	2. small rounded projection	foramen
<u>Tuberosity</u>	3. large rounded projection	fossa
<u>Head</u>	4. structure supported on neck	head
<u>Ramus</u>	5. armlike projection	meatus
<u>Condyle</u>	6. rounded, convex projection	ramus
<u>Meatus</u>	7. canal-like structure	sinus
<u>Foramen</u>	8. opening through a bone	spine
<u>Fossa</u>	9. shallow depression	trochanter
<u>Sinus</u>	10. air-filled cavity	tubercle
<u>Trochanter</u>	11. large, irregularly shaped projection	tuberosity

### 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? Long Bones
3. Classify each of the bones in the chart on the next page into one of the four major categories by checking the appropriate column. Use appropriate references as necessary.

	Long	Short	Flat	Irregular
Humerus	✓			
Phalanx	✓			
Parietal (skull bone)			✓	
Calcaneus (tarsal bone)		✓		
Rib			✓	
Vertebra				✓

## Gross Anatomy of the Typical Long Bone

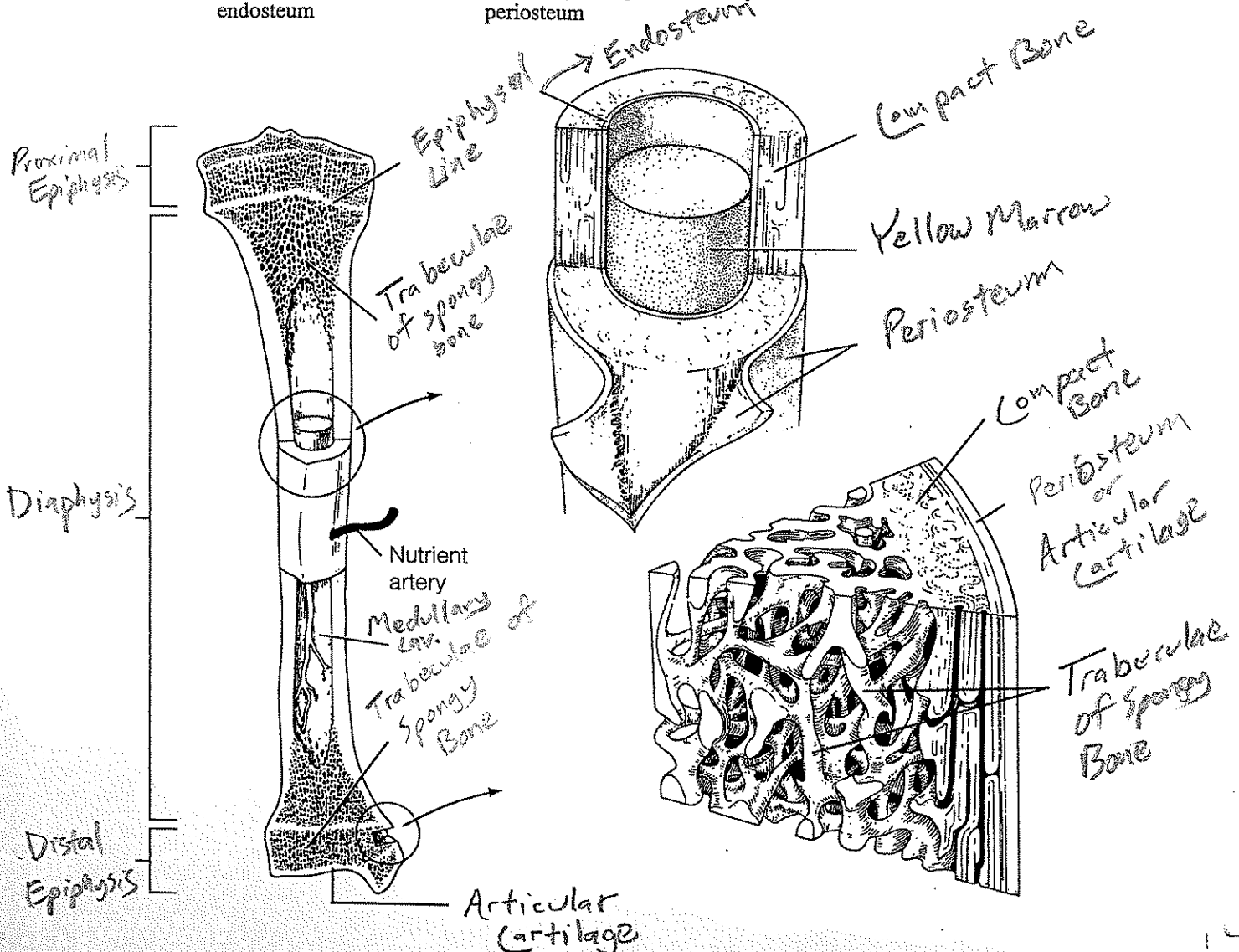
4. Use the terms below to identify the structures marked by leader lines and brackets in the diagrams (some terms are used more than once). After labeling the diagrams, use the listed terms to characterize the statements following the diagrams.

Key:

articular cartilage  
compact bone  
diaphysis  
endosteum

epiphyseal line  
epiphysis  
medullary cavity  
periosteum

red marrow cavity  
trabeculae of spongy bone  
yellow marrow



- Diaphysis 1. made almost entirely of compact bone      Epiphysis 4. scientific term for bone end  
Red Marrow 2. site of blood cell formation      Yellow Marrow 3. contains fat in adult bones  
Periosteum 5. fibrous membrane that covers the bone      Epiphyseal Line 6. growth plate remnant

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

Compact  $\Rightarrow$  Smooth, Appears Uniform / Homogeneous

Spongy  $\Rightarrow$  Holes / Openings (filled w/ Red Marrow) Need like bone tissue trabeculae

## PART A

Complete the following:

1. Where in the human skeleton are long bones found?

All Limbs

2. Distinguish between the epiphysis and the diaphysis of a long bone.

Epiphysis on ends

Has Spongy Bone on inside

Diaphysis shaft middle

All Compact / No Spongy

3. Where is cartilage found on a long bone?

Covers End surface of epiphysis in bones forming joints

4. Where is dense connective tissue found on a long bone?

Periosteum

5. In general, what is the function of bony processes?

Attachment point for tendons, ligaments

6. Distinguish between the periosteum and the endosteum.

Periosteum = outer membrane around bone

Endosteum = lines internal bone

7. What differences did you note between the structure of the compact bone and the spongy bone?

Compact - Dense Osteons (No gaps)

Spongy - Many branching bony plates (Has gaps)

8. How are these structural differences related to the locations and functions of these two types of bone?

Compact  $\rightarrow$  Strong Resists Bending

Spongy  $\rightarrow$  Helps Reduce Bone Weight, resist compressive forces

9. From your observations, how does the marrow in the medullary cavity compare with the marrow in the spaces of the spongy bone?

Medullary  $\rightarrow$  Yellow Marrow

Spongy  $\rightarrow$  Red Marrow