

**Section 6.1- Skeleton Overview  
Regular Anatomy**

Fill in the correct function of the skeleton based on the given description.

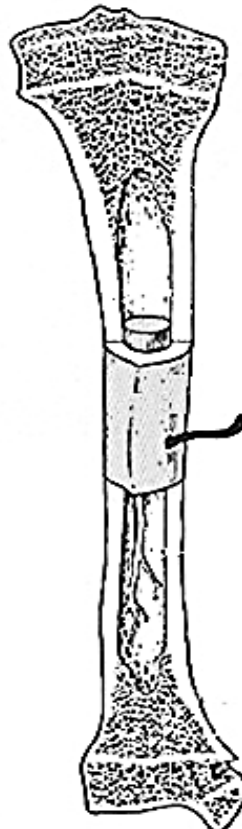
Description	Function
Articulations between bones and the attachment of muscles	
Red bone marrow	
The legs and lower legs hold up the body's weight; the hips cradle the abdominal organs	
Bone matrix consists of calcium phosphate that can be broken down and transported in the blood; yellow bone marrow	
The skull surrounds the brain; rib cage surrounds the organs of the thoracic cavity	

Classify the following bones as either a long bone, short bone, flat bone, irregular bone. If you are not familiar with the names of the bones, you will need to refer to Sections 6.2 and 6.3.

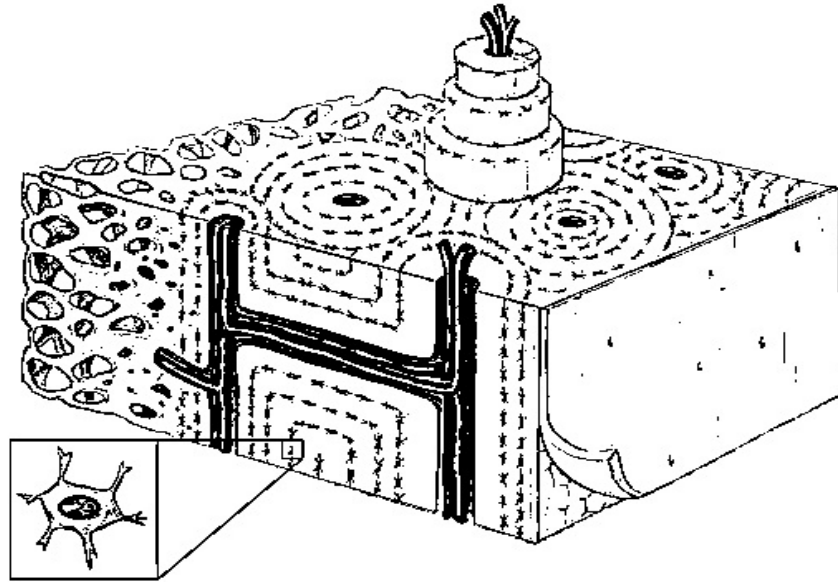
Name of Bone	Classification
Femur	
Metacarpals	
Occipital bone	
Phalanges	
Radius	
Scapula	
Tarsals	
Tibia	
Vertebrae	
Zygomatic bone	

Using different colors and the list below, color and label the different parts of a typical long bone .

- Articular cartilage
- Compact bone
- Diaphysis
- Endosteum
- Epiphyseal plate
- Epiphysis
- Medullary cavity
- Periosteum
- Spongy bone



Using different colors and the list below, color and label the different parts of compact bone .



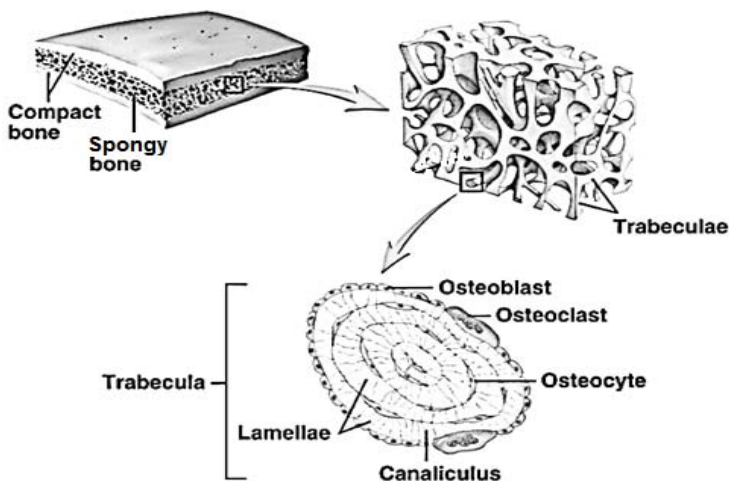
- Canaliculi
- Central canal
- Compact bone
- Lacuna
- Lamellae
- Osteocyte
- Osteon
- Periosteum

1. Color purple and label spongy bone.
2. The process of red blood cell formation, that takes place in spongy bone, is called \_\_\_\_\_.
3. Bone-forming cells are called \_\_\_\_\_.
4. Cells that breakdown or reabsorb bone are called \_\_\_\_\_.
5. Mature bone cells that derive from osteoblasts are called \_\_\_\_\_.

**Complete the paragraph about intramembranous ossification.**

The process of forming bone is called   1  . During   2   \_\_\_\_\_, bone forms between sheets of \_\_\_\_\_   3   \_\_\_\_\_. Cells within the connective tissue spontaneously change and become   4   \_\_\_\_\_, the cells that form bone. The matrix created by these osteoblasts resemble the trabeculae of   5   bone. Other osteoblasts associated with the   6   \_\_\_\_\_, or outer covering of bone, begin to form   7   bone around the spongy bone. When osteoblasts are completely encased by mineralized matrix, they become   8   \_\_\_\_\_. The classification of bone that is formed by this ossification process are   9   bones. Examples of this classification of bone is/are the   10   \_\_\_\_\_.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

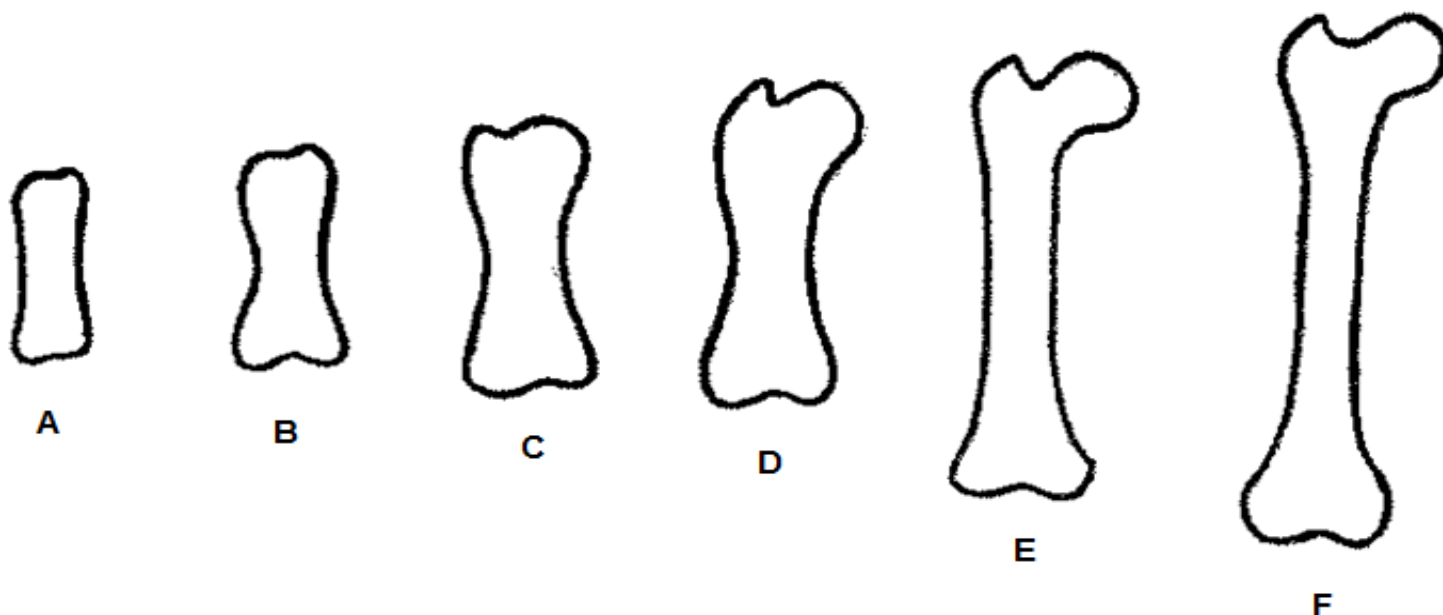


**Complete the paragraph about endochondral ossification.**

1 \_\_\_\_\_ is the bone forming process in which 2 \_\_\_\_\_ is replaced by bone during development. During endochondral ossification of a long bone, the cartilage begins to break down in the 3 of the long bone, which is now covered by a 4. 5, which are bone forming cells, invade the region and begin laying down 6 bone. This region is now called the \_\_\_\_\_ 7 \_\_\_\_\_. Other osteoblasts begin laying down 8 bone beneath the periosteum. As the compact bone thickens, the spongy bone in the diaphysis is broken down by 9, and the cavity created becomes the 10 \_\_\_\_\_. After birth, the ends of long bones called 11 continue to grow and soon a \_\_\_\_\_ 12 \_\_\_\_\_ appears and spongy bone is formed. In this region, spongy bone does not break down. Between the primary and secondary ossification centers is a band of cartilage called the 13 \_\_\_\_\_, or growth plate. As long as this cartilage plate is present, the bone continues to increase in 14 and width. The rate of growth of bone is controlled by 15 \_\_\_\_\_. Eventually, the epiphyseal plate becomes 16 and bone growth 17 \_\_\_\_\_.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_

**Complete the diagram below, of endochondral ossification, by following the given instructions.**



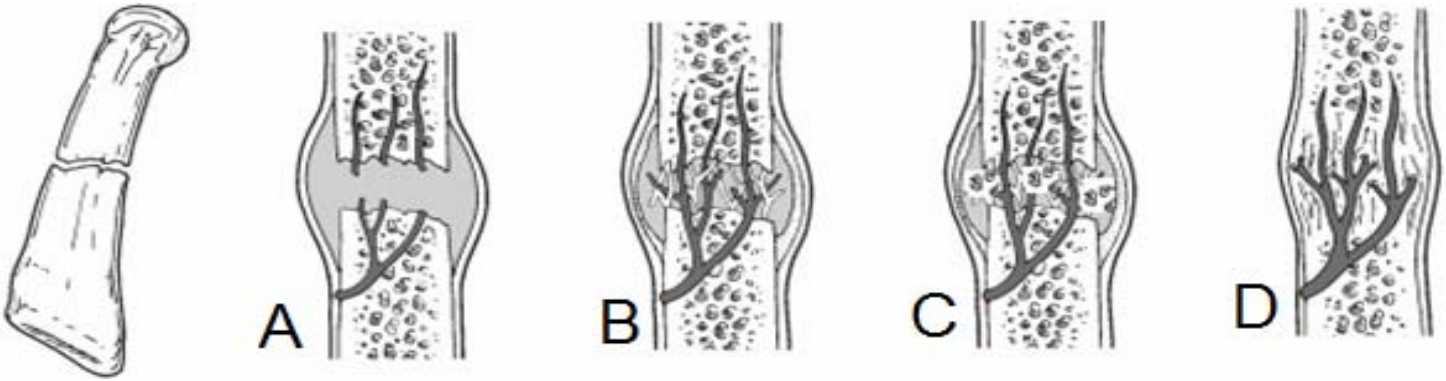
1. Color Diagram A blue and label it hyaline cartilage.
2. For Diagram B, draw and label the periosteum. Color the periosteum yellow. Draw blue dots in the diaphysis and label these osteoblasts.
3. For Diagram C, draw, color, and label the primary ossification center. Next, draw, color, and label compact bone.
4. For Diagram D, draw, color, and label the secondary ossification centers and the medullary cavity.
5. For Diagram E, draw and label the secondary ossification centers. Next, draw, color, and label the epiphyseal plate.
6. For Diagram F, draw, label and color blue articular cartilage. Label spongy bone and compact bone. Draw and label the marrow cavity.

**Complete the paragraph about the healing of a fracture.**

The breaking of a bone is called a   1  . The repairing of a broken bone occurs in four steps. Step 1, the formation of a   2  , occurs when broken blood vessels form a mass of clotted   3   in between the spaces of the broken bones. Step 2,   4   formation, is the beginning of   5   repair, in which   6   fills the spaces between the broken bones. During this step,   7   vessels begin to reattach to one another. Step 3,   8   formation, is when fibrocartilage is replaced by   9  .   10  , bone making cells, produce spongy bone that joins the broken bone ends together. Finally, Step 4,   11  , osteoblasts build new   12   bone around the spongy bone, while the spongy bone is   13   by   14  , thus creating a new   15  .

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_

**Complete the diagram below, of the steps of healing a fracture, by following the given instructions.**



1. For each of the illustrations, A-D, label the 4 steps of healing a fracture.
2. For Diagram A, color red and label the blood vessels.
3. For Diagram B, color blue and label fibrocartilage.
4. For Diagram C, color orange and label the osteocytes.  
For Diagram C, color yellow and label spongy bone.
5. For Diagram D, color green and label compact bone.