

## Chapter 5-Skeletal System Notes

The axial skeleton consists of the \_\_\_\_\_ and \_\_\_\_\_

The appendicular skeleton consists of...

The skeletal system also contains \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_

The five functions of the skeletal system are:

-The skeleton supports and anchors all \_\_\_\_\_

-Protects the \_\_\_\_\_ and \_\_\_\_\_ as well as the soft organs of the  
\_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ systems

-Movement where muscles attach to bones via \_\_\_\_\_

Bones attach to each other by \_\_\_\_\_

-Storage cavities in the bone for \_\_\_\_\_ as well as \_\_\_\_\_ and  
\_\_\_\_\_ in the actual bone.

-Blood cells are formed in the \_\_\_\_\_ cavities of certain bones.

### TYPES OF BONES

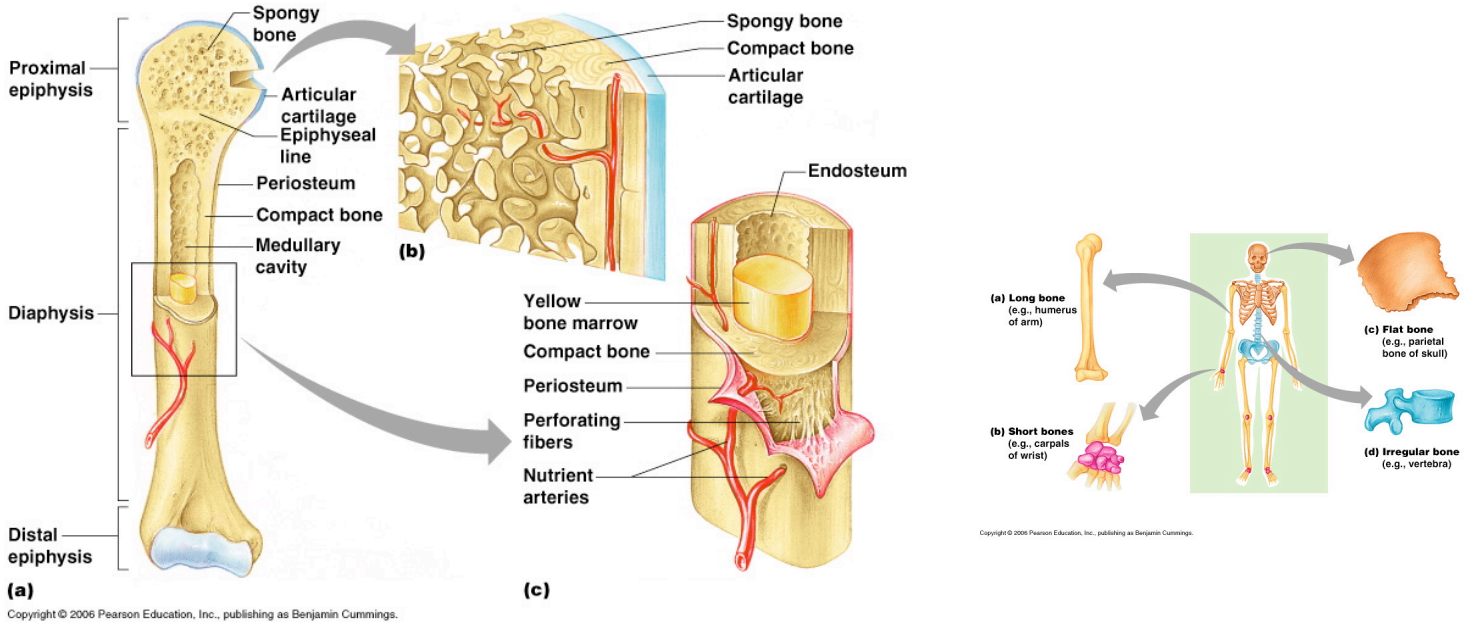
Long Bones-Longer than they are wide. Examples include:

Short Bones-Cube shape made mostly of \_\_\_\_\_ bone. Examples include:

The long shaft of compact bone is called the \_\_\_\_\_. It is covered and  
protected by connective tissue called \_\_\_\_\_. The periosteum is secured to  
the underlying bone by \_\_\_\_\_. The end of a long bone is called the  
\_\_\_\_\_.

Flat Bones-Thin and flat and are usually \_\_\_\_\_. Examples include:

Irregular Bones-Irregularly shaped bones found in:



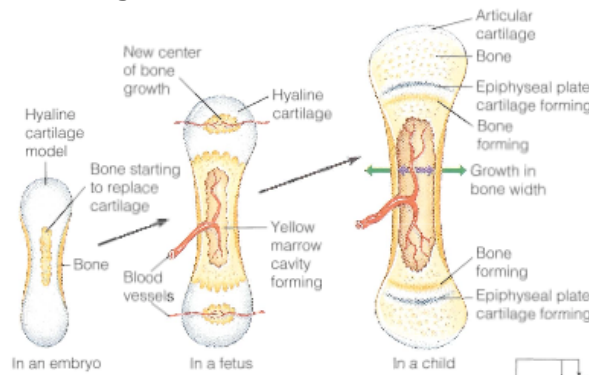
Epiphysis-

Hematopoiesis-

Diaphysis

Yellow Marrow Cavity-

The growth of a bone occurs along the \_\_\_\_\_



Articular Cartilage is a glassy hyaline cartilage found at the \_\_\_\_\_ of the bones

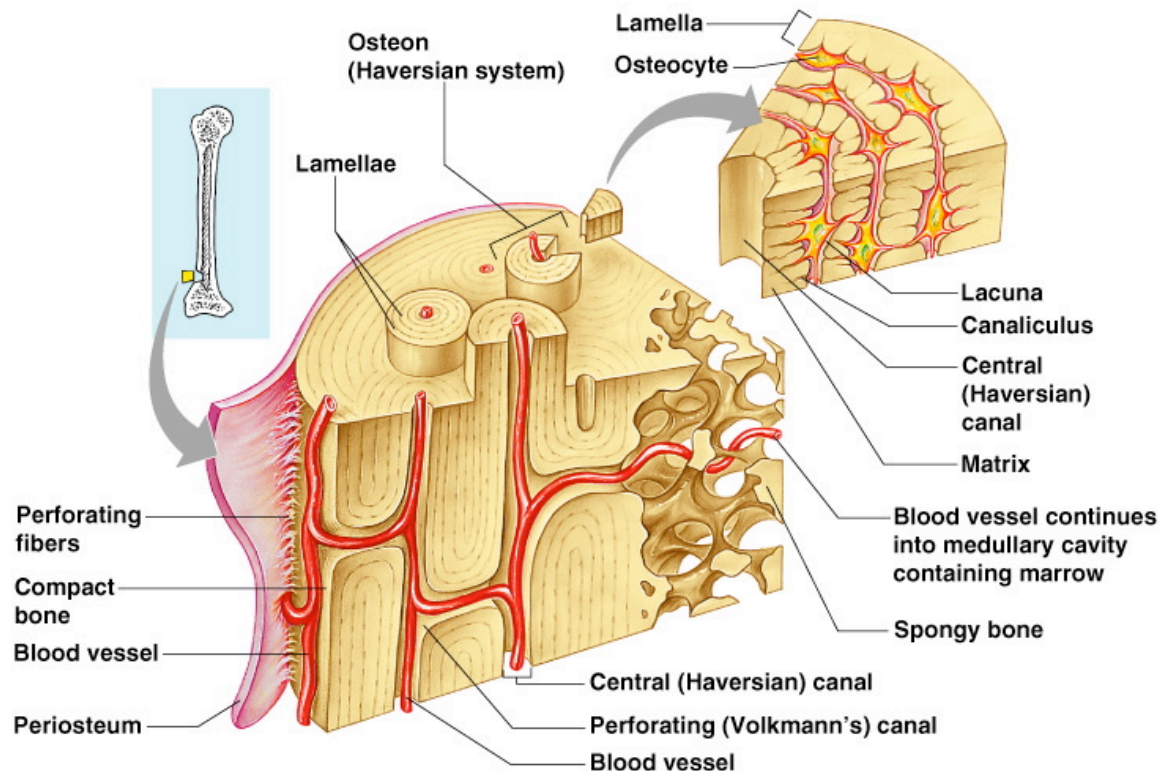
and provides a slippery surface to reduce \_\_\_\_\_ at the joints.

The remnant of the epiphyseal plate seen in young growing bones is called the \_\_\_\_\_.

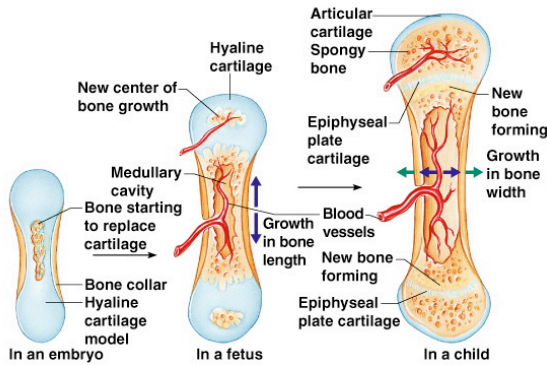


\_\_\_\_\_ marrow is found in the shaft. In young bones, \_\_\_\_\_ marrow is found there producing blood cells. In adults the \_\_\_\_\_ marrow is found in the spongy area of \_\_\_\_\_.

Bone cells are called \_\_\_\_\_, are in a matrix called \_\_\_\_\_ arranged in tiny circles called \_\_\_\_\_, around central canals called \_\_\_\_\_. Blood vessels are found here.

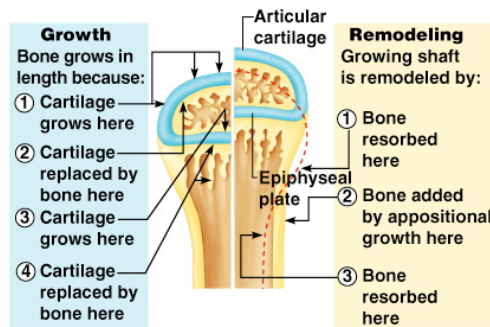


The process of bone formation is called ossification. First the hyaline cartilage is covered with a bone matrix by cells called osteoblasts. The cartilage is digested away opening a cavity where new bone marrow can form.

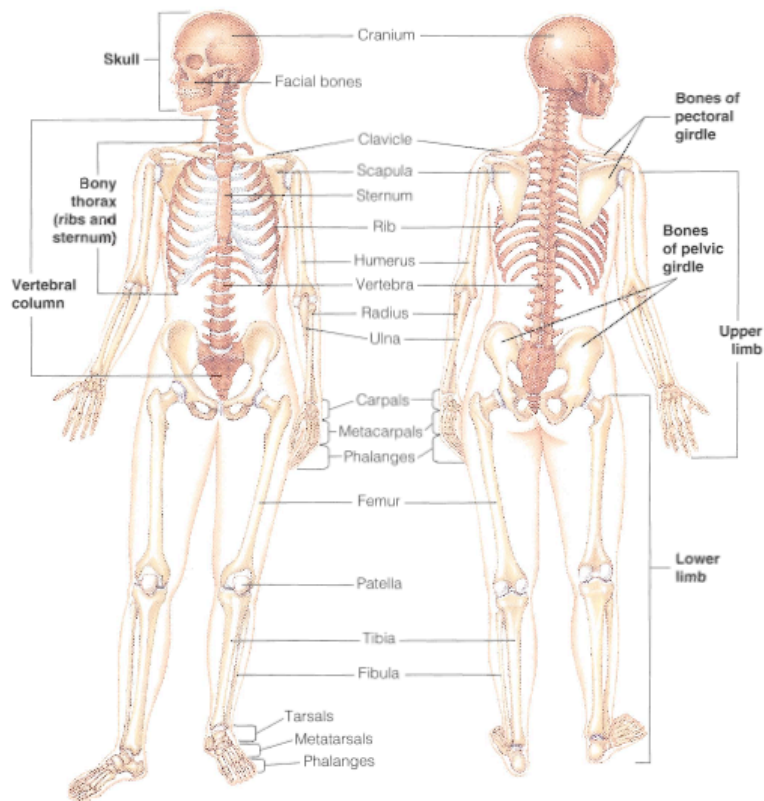


Bones will widen when osteoblasts add bone to the periosteum.

This is controlled by growth hormone and parathyroid hormone hormones activated during childhood.



### AXIAL SKELETON= SKULL AND VERTEBRAL COLUMN BONES



SKULL -The \_\_\_\_\_ protects the brain, the \_\_\_\_\_

holds the eyes and allows facial muscles to convey expression. All of the bones

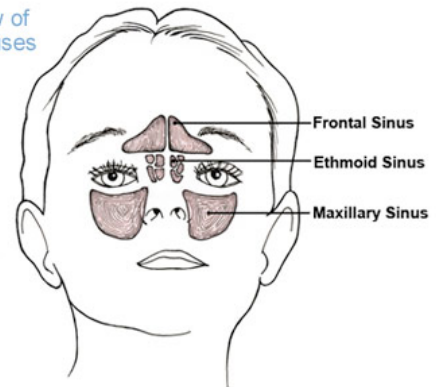
are held together with \_\_\_\_\_

The cranium is composed of \_\_\_\_\_ flat bones.

There are \_\_\_\_\_ facial bones, 12 are paired.

Sinuses are \_\_\_\_\_pockets located within the bones of the skull. The channels permit air from the nose into the sinuses. They allow mucous from each sinus to drain into the mouth.

Front view of nasal sinuses



Why are they susceptible to infection?

Why is the hyoid bone unique?

Where is it located and what is its function?

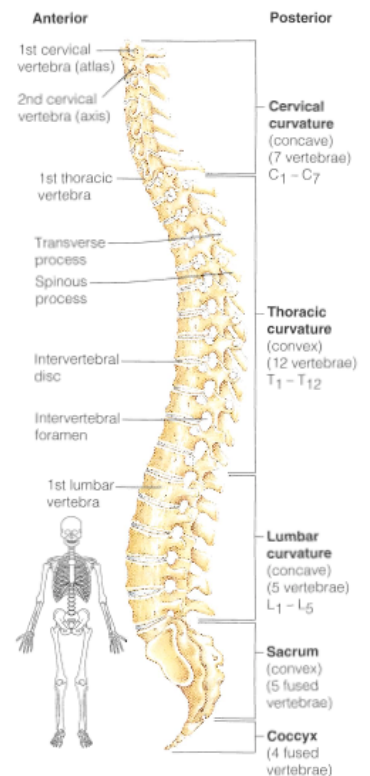
The vertebral column (\_\_\_\_\_ ) is composed of \_\_\_\_\_ irregular bones and extend from the \_\_\_\_\_ to the \_\_\_\_\_.

What is its purpose?

Cervical ( \_\_\_\_\_ ) and composes the neck region

Thoracic ( \_\_\_\_\_ ) These are larger bones where the \_\_\_\_\_ attach

Lumbar ( \_\_\_\_\_ ) Large sturdy block like bones.





## Abnormalities-Scoliosis

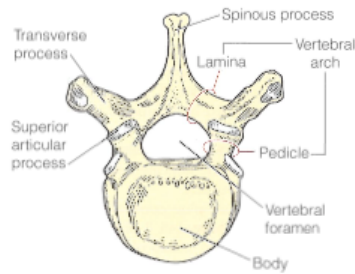
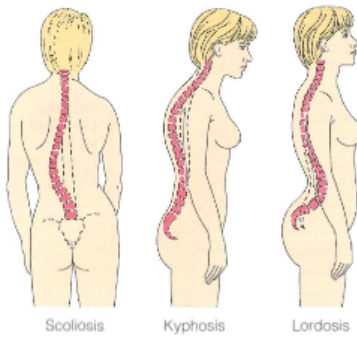
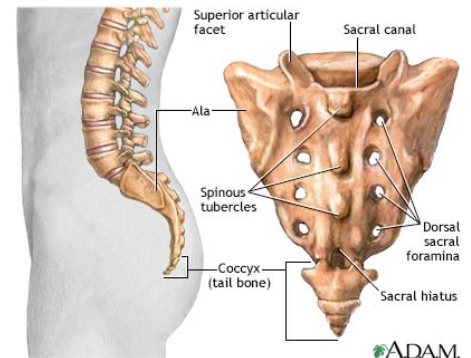


Figure 5.16 A typical vertebra, superior view.  
(Inferior articulating surfaces are not shown.)

The sacrum is composed of \_\_\_\_\_ bones and

Is located below \_\_\_\_\_.

The coccyx is the \_\_\_\_\_ and is composed of  
\_\_\_\_\_ tiny fused vertebrae.



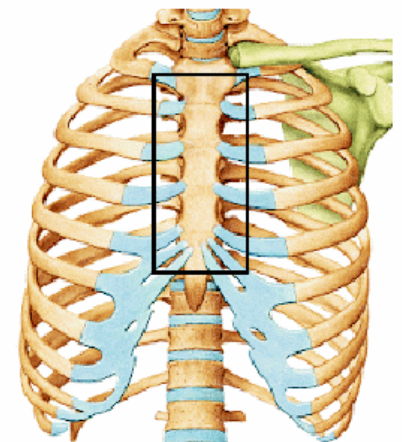
The sternum is \_\_\_\_\_ fused flat bones where the first  
\_\_\_\_\_ pairs of ribs attach anteriorly (in the front)

The job is to protect the \_\_\_\_\_ and \_\_\_\_\_.

All \_\_\_\_\_ pairs of ribs articulate \_\_\_\_\_.

Ribs \_\_\_\_\_ are called true ribs and attach to the sternum.

Ribs \_\_\_\_\_ are either attached indirectly or not at all (floating ribs 11-12).



## APPENDICULAR SKELETON (\_\_\_\_\_ bones)

These are the bones of the girdles (\_\_\_\_\_ and \_\_\_\_\_)

The shoulder girdle is composed of the \_\_\_\_\_ and \_\_\_\_\_.

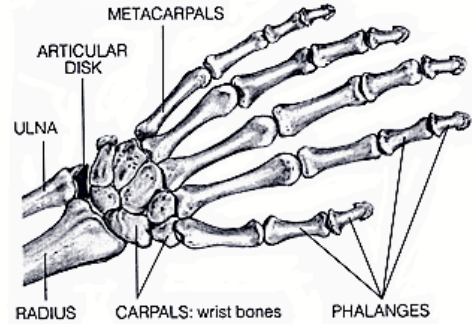
These are light and flexible with a \_\_\_\_\_ socket for limb attachment.

## BONES

The upper arm bone is called the \_\_\_\_\_ and the two bones of the lower arm are the \_\_\_\_\_ and the \_\_\_\_\_.

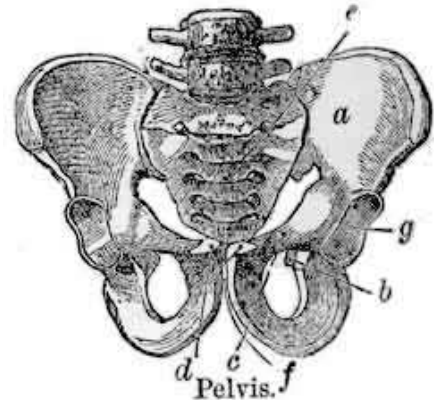
How can you tell which is which?

Label all of the bones in the diagram.



The pelvic girdle is strong in order to support the weight of the body. In contrast to the pectoral girdle, the pockets for limb attachment are \_\_\_\_\_.

The three bones are:

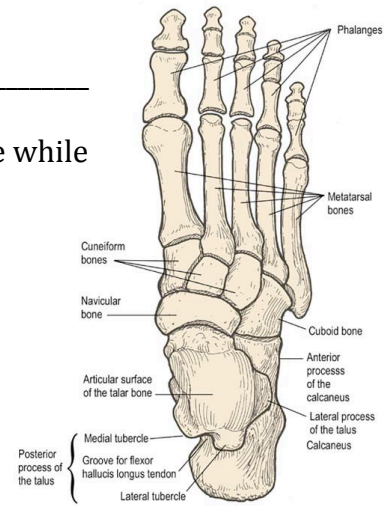


*a*, Ilium; *b*, ischium; *c*, pubis; *d*, symphysis pubis; *e*, sacrum; *f*, coccyx; *g*, acetabulum or cavity for head of thigh-bone.

The upper bone of the leg is called the \_\_\_\_\_. It is the \_\_\_\_\_ and \_\_\_\_\_ bone in the body. The bones of the lower leg are called the \_\_\_\_\_ and the \_\_\_\_\_.

How can you tell which is which?

The \_\_\_\_\_ bones make up the \_\_\_\_\_  
 part of the foot (heel). \_\_\_\_\_ make up the sole while  
 the toes are called the \_\_\_\_\_.

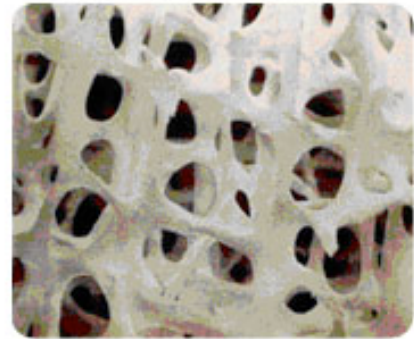


### OSTEOPOROSIS

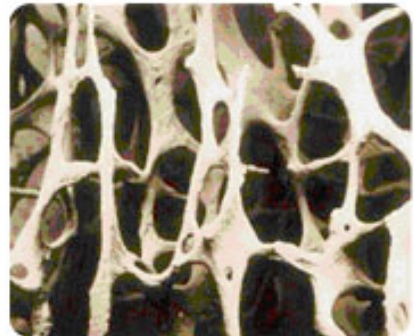
This causes a thinning of the bone.

- This affects \_\_\_\_\_ of women over 65
- \_\_\_\_\_ of men over 70.
- The bones are so weak, even a \_\_\_\_\_ can break them
- This also causes \_\_\_\_\_ with age.

Hueso sin Osteoporosis



Hueso con Osteoporosis



### BREAKING BONES

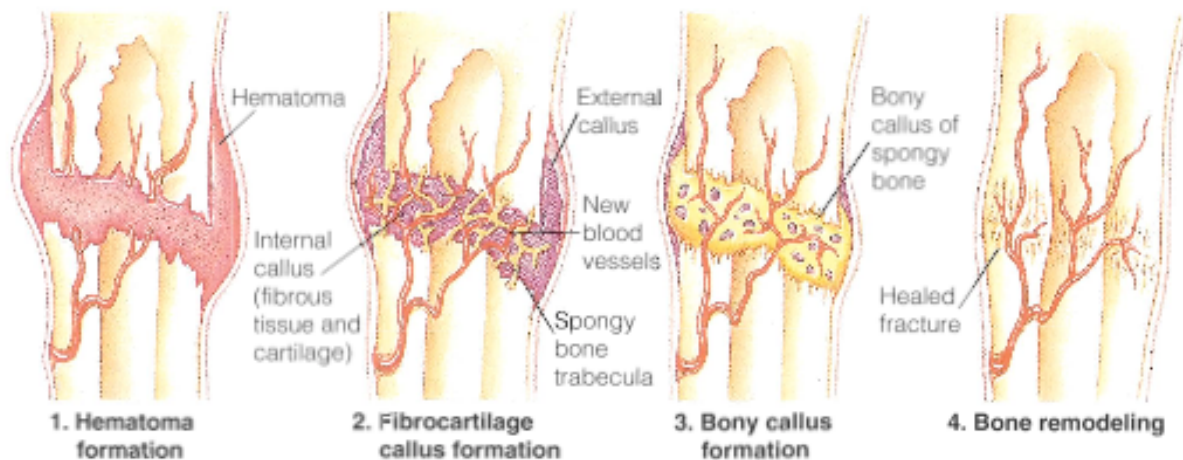
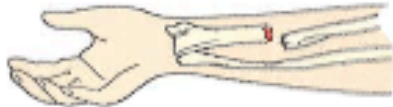

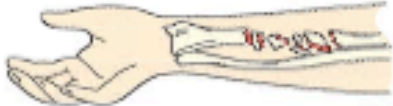

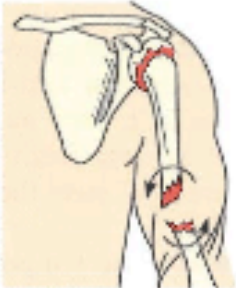





Table 5.2 Common Types of Fractures

Fracture type	Illustration	Description	Comment
Simple		Bone breaks cleanly but does not penetrate the skin.	Sometimes called a "closed fracture."
Compound		Broken ends of the bone protrude through soft tissues and the skin.	An open fracture. More serious than a simple fracture; may result in a severe bone infection (osteomyelitis), requiring massive doses of antibiotics.
Comminuted		Bone breaks into many fragments.	Particularly common in the aged, whose bones are more brittle.
Compression		Bone is crushed.	Common in porous bones (i.e., osteoporotic bones).
Depressed		Broken bone portion is pressed inward.	Typical of skull fracture.
Impacted		Broken bone ends are forced into each other.	Commonly occurs when one falls and attempts to break the fall with outstretched arms; also common in hip fractures.
Spiral		Ragged break occurs when excessive twisting forces are applied to a bone.	Common sports fracture.
Greenstick		Bone breaks incompletely, much in the way a green twig breaks.	Common in children, whose bones have relatively more collagen in their matrix and are more flexible than those of adults.

## JOINTS

\_\_\_\_\_ hold the bones together and allow the rigid skeleton to \_\_\_\_\_.

\_\_\_\_\_ All bones will meet at a joint except the \_\_\_\_\_.

Fibrous Joints-

Cartilaginous Joints-

Synovial Joints-

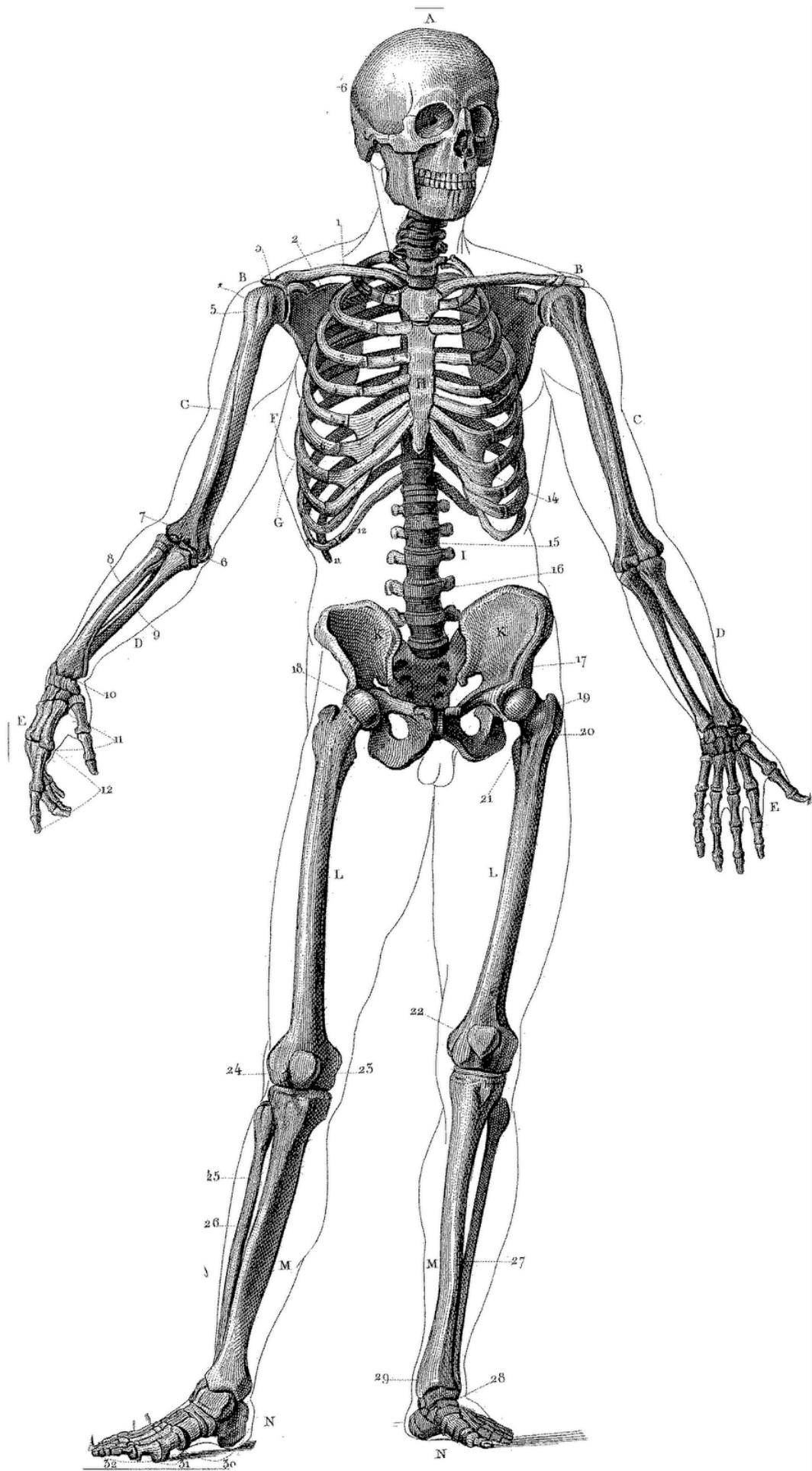
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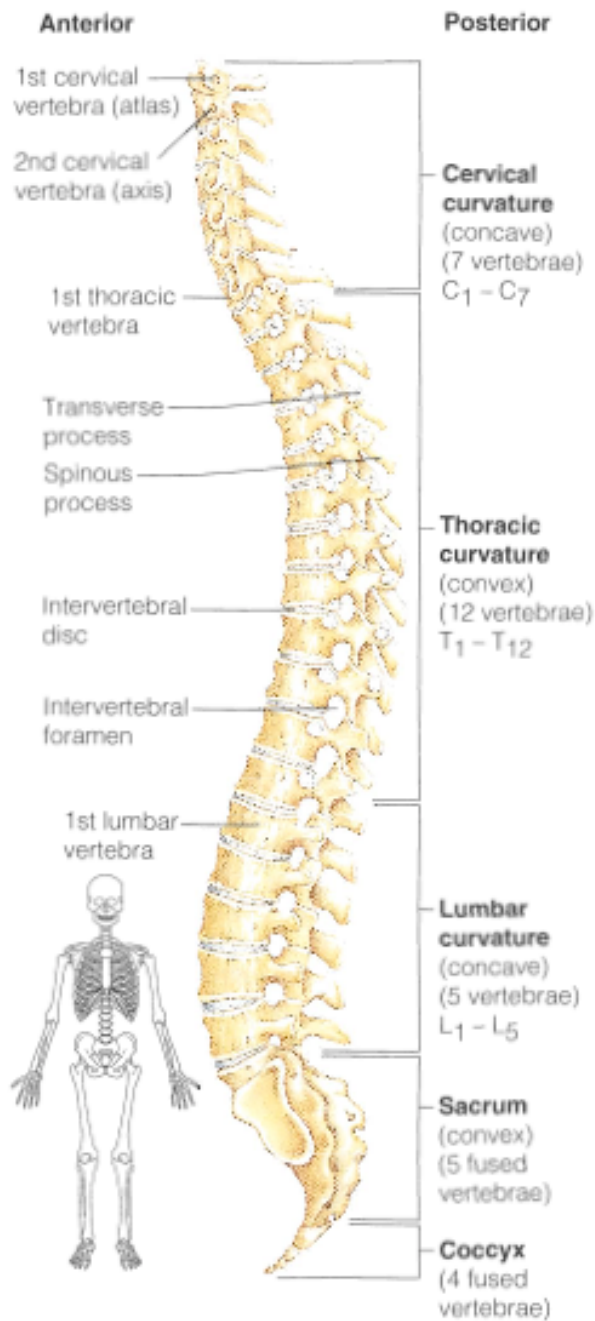
## DISORDERS OF THE JOINTS

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## DEVELOPMENTAL ASPECTS

- Endocrine System-Regulates uptake and release of \_\_\_\_\_ by bones.
- Muscular System-Increases bone \_\_\_\_\_.
- Nervous System-Conveys sense of \_\_\_\_\_ in the bones and joints.
- Integumentary System-Provides vitamin \_\_\_\_ for proper calcium absorption.
- Urinary System-\_\_\_\_\_ vitamin D for proper calcium usage.
- Reproductive System-produce \_\_\_\_\_ that form skeleton and epiphyseal closure.





### Facial Bones

