

## Skeletal System

### **Functions of The Skeletal System:**

- 1.
- 2.
- 3.
- 4.
- 5.

### **Structures of The Skeletal System:**

- 1.
- 2.
- 3.
- 4.
- 5.

### **The Structures of Bones:**

Form of connective tissue and is almost the hardest tissue in the body.

**Tissues of Bone** - It may be hard and dense, but is also a living structure that changes and is capable of healing itself.

Tissues of a Bone	
	Tough fibrous tissue that forms the outermost covering of bone
	Hard, dense, and very strong bone that forms the outer layer of the bones.
	Lighter and not as strong as compact bone, it is commonly found in the ends and inner portions of long bone; house the red bone marrow
	Located in the shaft of a long bone and surrounded by compact bone; lined with endosteum and contains yellow bone marrow

*\*Place bone drawing here*

## Skeletal System

### Bone Marrow –

	<ul style="list-style-type: none"> <li>● located in the spongy bone</li> <li>● is hematopoietic</li> <li>● manufactures                             <ul style="list-style-type: none"> <li>○</li> <li>○</li> <li>○ megakaryocytes (produce thrombocytes)</li> </ul> </li> </ul>
	Means pertaining to the formation of blood cells
	<ul style="list-style-type: none"> <li>● located in the medullary cavity</li> <li>● composed of fat cells</li> <li>●</li> </ul>

### Cartilage –

	<ul style="list-style-type: none"> <li>● smooth rubbery blue-white connective tissue</li> <li>● acts as a shock absorber between bones</li> <li>● more elastic than bone</li> <li>● makes up the flexible parts of the skeleton such as tip of nose and outer ear</li> </ul>
	<ul style="list-style-type: none"> <li>● covers the surfaces of bones that form joints</li> <li>● make smooth joint movement possible</li> <li>● protect the bones from rubbing against each other</li> </ul>
<b>Meniscus</b>	<ul style="list-style-type: none"> <li>●</li> </ul>

### Anatomic Landmarks of a Bone –

<b>Diaphysis</b>	<ul style="list-style-type: none"> <li>●</li> </ul>
	<ul style="list-style-type: none"> <li>● covered with articular cartilage</li> <li>● wide end of a long bone</li> </ul>
	end of the bone that is located nearest to the midline of the body
	end of the bone that is located farthest away from the midline of the body
	opening in the bone in which blood vessels, nerves and ligaments pass through
<b>Process</b>	<ul style="list-style-type: none"> <li>●</li> </ul>

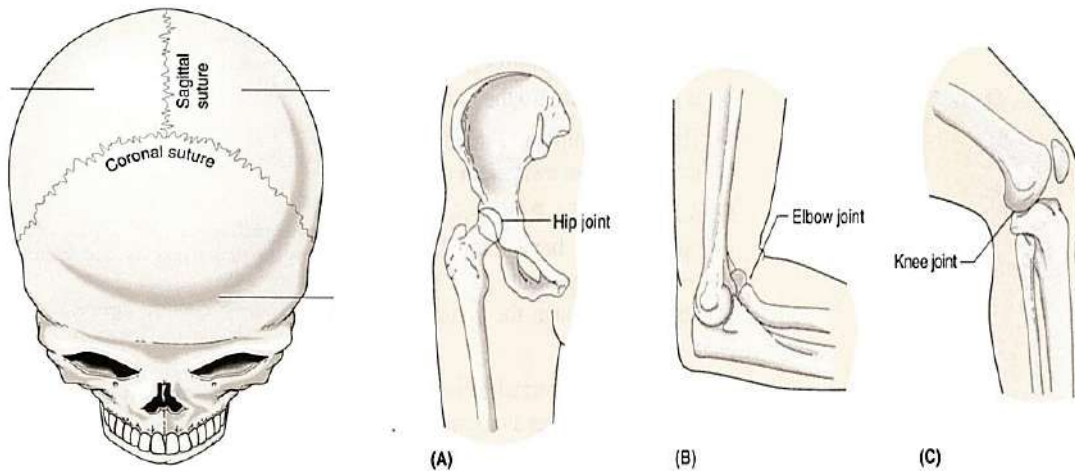
## Skeletal System

### Joints:

### Articulations –

### **Types of Joints –**

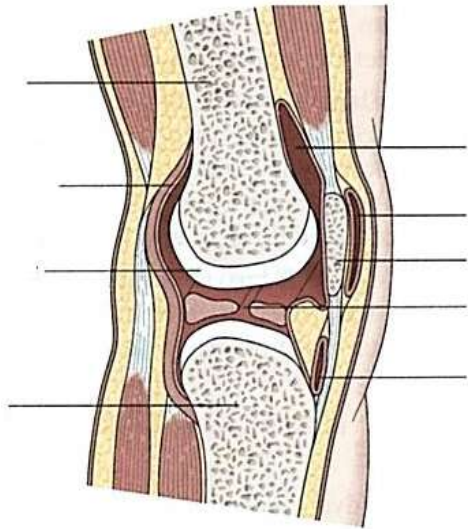
	<ul style="list-style-type: none"><li>• jagged line where bones join and form a joint that doesn't move</li><li>• At birth, babies have fontanel where the sutures between the frontal and parietal bones have not closed yet</li></ul>
<b>Symphysis (cartilaginous joint)</b>	<ul style="list-style-type: none"><li>•</li></ul>
<b>Synovial Joints</b>	<ul style="list-style-type: none"><li>•<ul style="list-style-type: none"><li>○ ball and socket - allow a wide range of movement in many directions</li><li>○ hinge - allow movement primarily in one direction or plane</li></ul></li></ul>



### **Structures of Synovial Joints –**

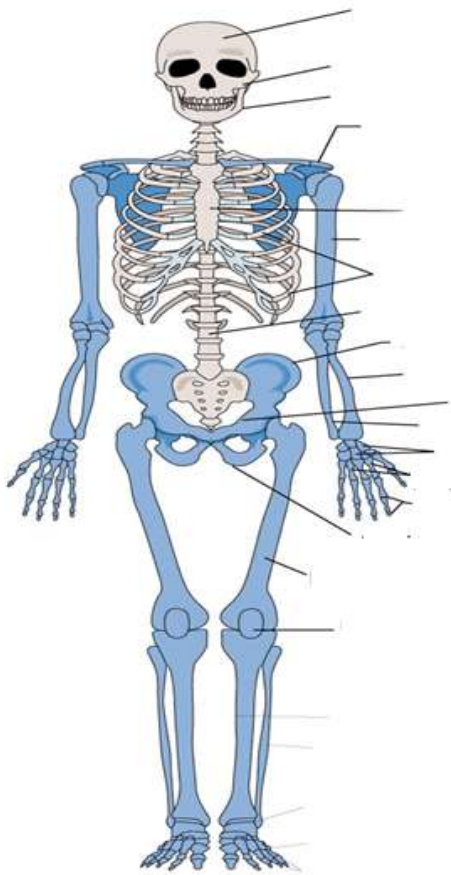
<b>Ligaments</b>	<ul style="list-style-type: none"><li>•</li></ul>
	<ul style="list-style-type: none"><li>• lines the fibrous capsule that surround synovial joints</li><li>• secretes synovial fluid</li></ul>
<b>Synovial Fluid</b>	<ul style="list-style-type: none"><li>•</li></ul>
	<ul style="list-style-type: none"><li>• fibrous sac lined with synovial membrane</li><li>• acts a cushion to ease movement in areas that are subject to friction</li></ul>

## Skeletal System



### The Skeleton:

Consists of 206 bones as an adult.



\_\_\_\_\_ - 80 bones

- protects major organs of the nervous, respiratory, and circulatory systems

- 

- consists of the:

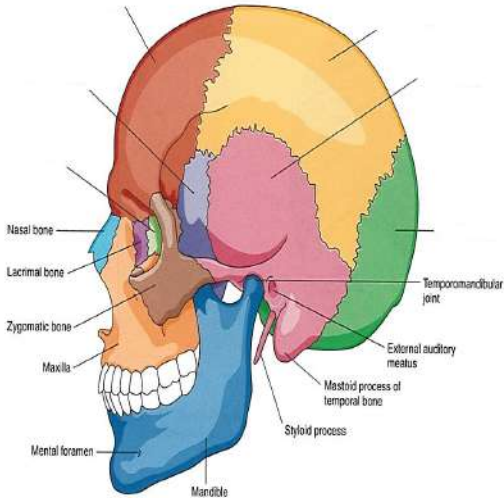
- Skull
- Spinal Column
- Ribs
- Sternum

\_\_\_\_\_ - 126 bones

- makes body movement possible
- protects the organs of digestion, excretion and reproduction
- organized into
  - upper extremities - shoulders, arms, forearms, wrists and hands
  - lower extremities - hips, thighs, ankles and feet

### **Bones of the Skull -**

## Skeletal System

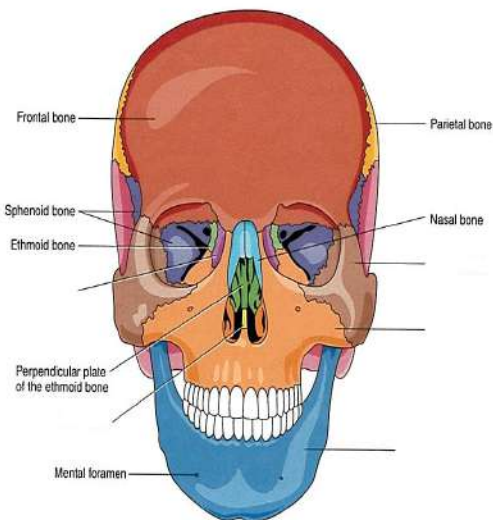


- **Bones of the Cranium** - Portion of the skull that encloses the brain

- Frontal bone –
- Parietal bone -
- Occipital bone -
- Temporal bone –
- Sphenoid bone -
- Ethmoid bone -
- Auditory Ossicles –
- External Auditory Meatus -

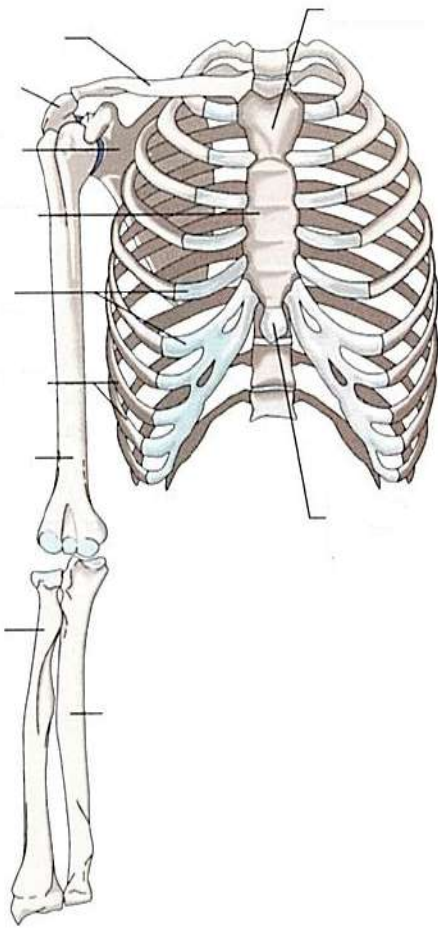
- **Bones of the Face** -

- Zygomatic bones –
- Maxillary bones –
- Palatine bones -
- Lacrimal bones - part of the orbit at the inner angle of the eye
- Inferior conchae - form part of the interior of the nose
- Vomer bone - base for the nasal septum
- Mandible –
- Hyoid bone -



## Thoracic Cavity, Ribs, and Sternum -

## Skeletal System



- \_\_\_\_\_ - consists of the ribs, sternum, and thoracic vertebrae
- Ribs -
  - \_\_\_\_\_ (ribs) that connect posteriorly to the thoracic vertebrae
  - Pairs 1-7 attach anteriorly to the sternum; true ribs
  - Pairs 8-10 attach anteriorly to cartilage that joins with the sternum; false ribs
  - Pairs 11 & 12 are called the floating ribs; no anterior attachment
- \_\_\_\_\_ - forms the middle of the front of the rib cage
  - Manubrium - upper portion
  - Body - middle portion
  - Xiphoid process - lower portion

**Shoulder (pectoral girdle)** - shoulder girdle supports the arms and hands

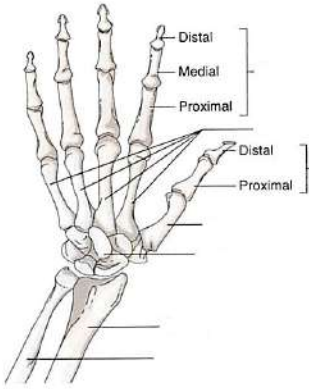
- \_\_\_\_\_ - connects the sternum to the scapula
- \_\_\_\_\_ - extension of the scapula that forms the high point of the shoulder

### Arms –

- Humerus –
- Radius –
- Ulna –
- Olecranon process (funny bone) - large projection on the upper end of the ulna; point of the elbow

### Wrist and Hands –

## Skeletal System



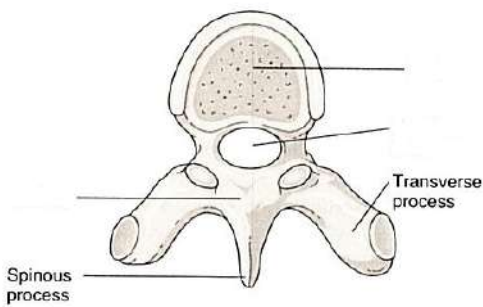
- Carpals –
- Metacarpals –
- Phalanges -
  - each finger has 3 bones - distal, medial, proximal
  - thumb has 2 - distal and proximal

## Spinal Column –

- Vertebral column
- 
- Function is to support the head and body and to protect the spinal column

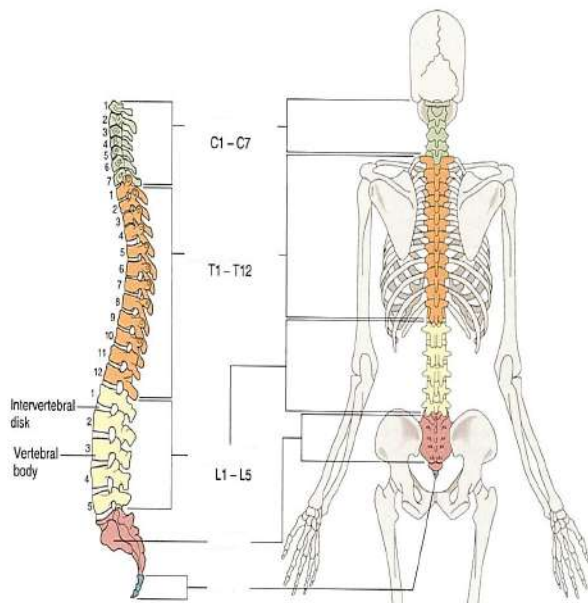
## Structures of the vertebrae -

- Body solid anterior portion of each vertebrae
- Lamina - posterior portion of a vertebra
- Vertebral Foramen - opening in the middle of the vertebra; allows the spinal cord to pass through



## Types of Vertebrae –

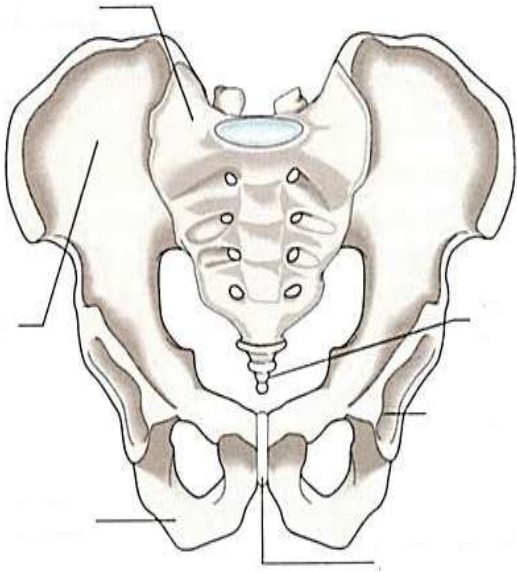
- \_\_\_\_\_ - the first set of seven vertebrae that forms the neck; C1 - C7
- 
- \_\_\_\_\_ - second set of 12 vertebrae;
  - form the outward curve of the spine
  - T1-T12
- \_\_\_\_\_ - third set of vertebrae
  - L1 - L5
  - Largest and strongest
  - form the inward curve of the spine



## Intervertebral Disks –

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- made of cartilage
- separate and cushion
- act as shock absorbers
- allow for movement



### Sacrum –

- slightly curved, triangular shaped bone near the base of the spine
- \_\_\_\_\_ bones fused to form one bone

### Coccyx ( \_\_\_\_\_ ) -

- forms the end of the spine
- \_\_\_\_\_ fused bones

### Pelvic Girdle -

aka the hips of pelvic bone, protects internal organs, supports the lower extremities, made up of 3 bones fused together

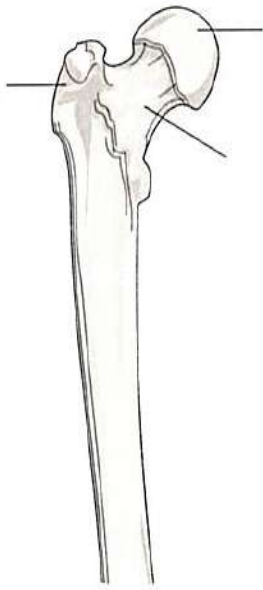
- \_\_\_\_\_ - upper, blade-shaped part of the hip; one on each side
- \_\_\_\_\_ - slightly movable articulation between the sacrum and the ilium
- \_\_\_\_\_ - lower and posterior portion of the pelvic girdle
- \_\_\_\_\_ - anterior portion of the pelvic girdle
- \_\_\_\_\_ - cartilaginous joint that hold the bones firmly together
- \_\_\_\_\_ - the large socket in the pelvic bones, forms the hip socket for the head of the femur

### Legs and Knees –



## Skeletal System

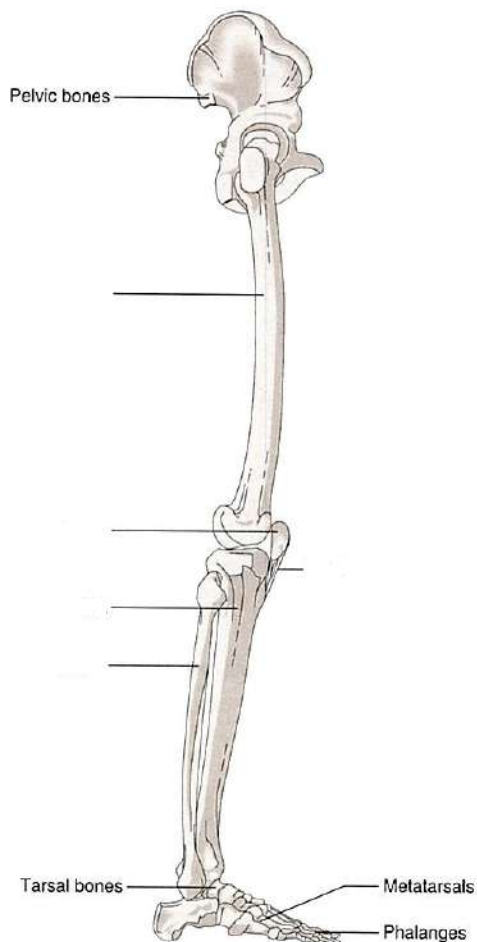
### Femur –



- head of the femur –
- femoral neck –
- Trochanter - is one of the two large bony projections on the upper end of the femur just below the femoral neck

### Knees –

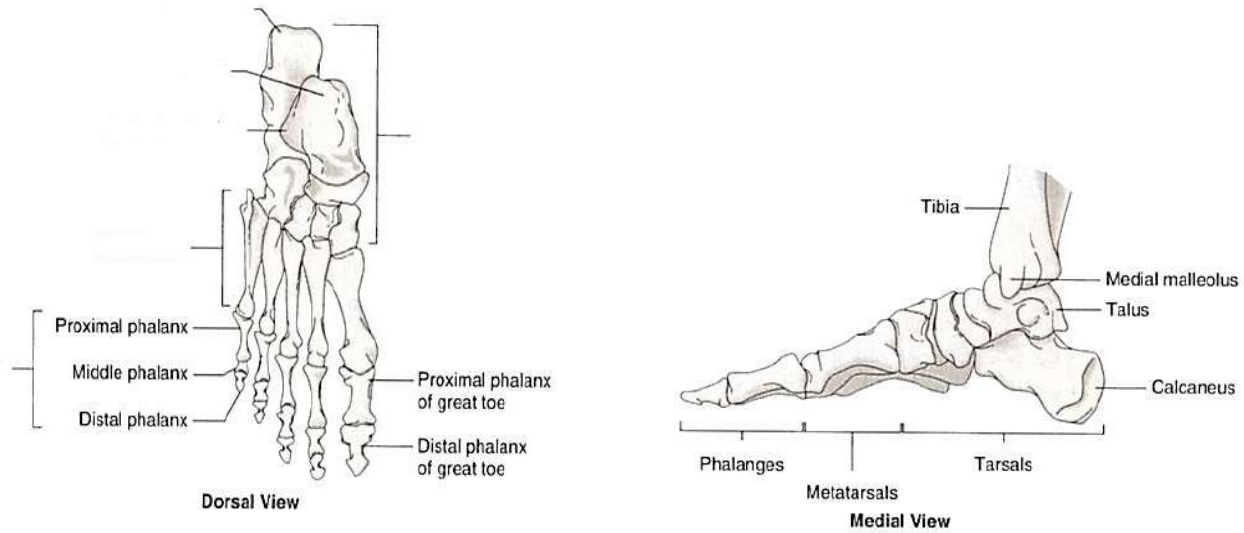
- Patella –
- Popliteal - posterior surface of the knee and is used to describe the space, ligaments, vessels, and muscles in this area
- Anterior Cruciate Ligament (\_\_\_\_\_) / Posterior Cruciate Ligament (\_\_\_\_\_) - make possible the movements of the knee



### Lower Leg –

- Tibia (shin bone) –
- Fibula -

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### Ankles and Feet –

- Tarsals - bones that make up the \_\_\_\_\_
- Malleolus - round bony protuberance on each side of the ankle
- Talus- is the ankle bone that articulates with the tibia and fibula
- Calcaneus -
- Metatarsals - are the bones of the foot.
- Phalanges - the bones of the \_\_\_\_\_