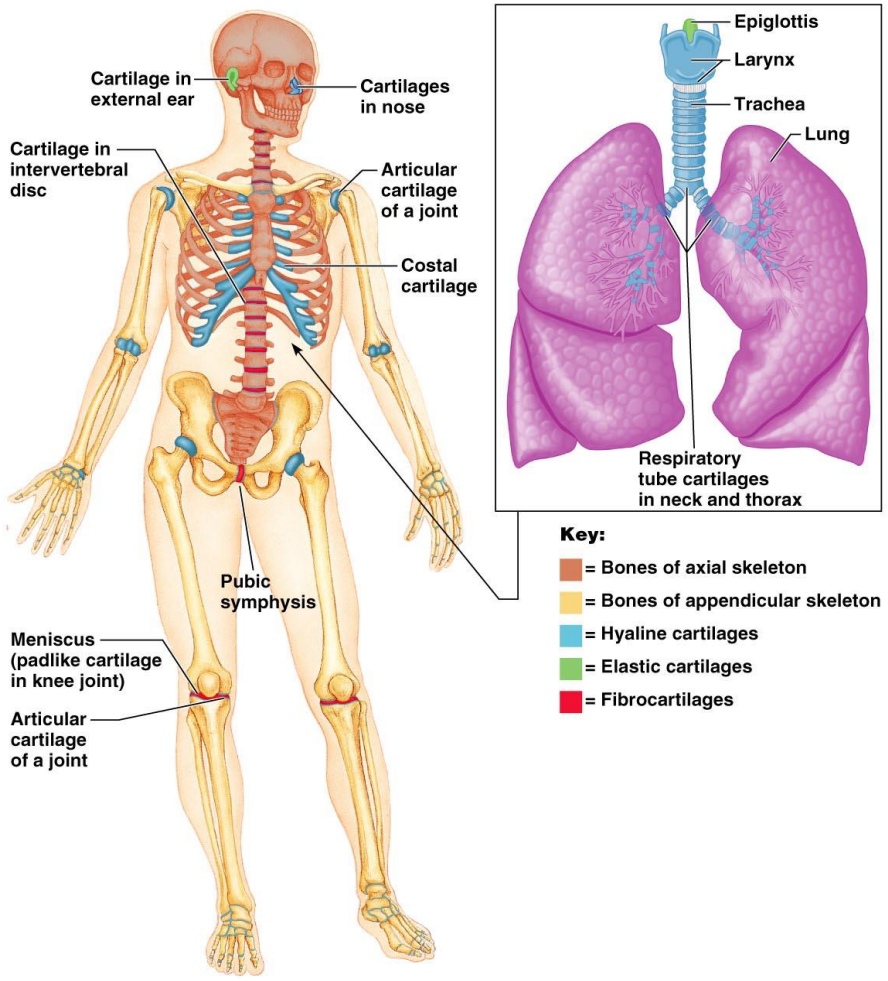
Chapter 6:
Bones and Skeletal Tissues
Intro – Bone Markings

Skeletal Cartilages

- All skeletal cartilages are surrounded by the perichondrium (dense irregular)
  - Act like a girdle to resist outward expansion when cartilage is compressed
  - Contains blood vessels so that cartilage can get the necessary nutrients

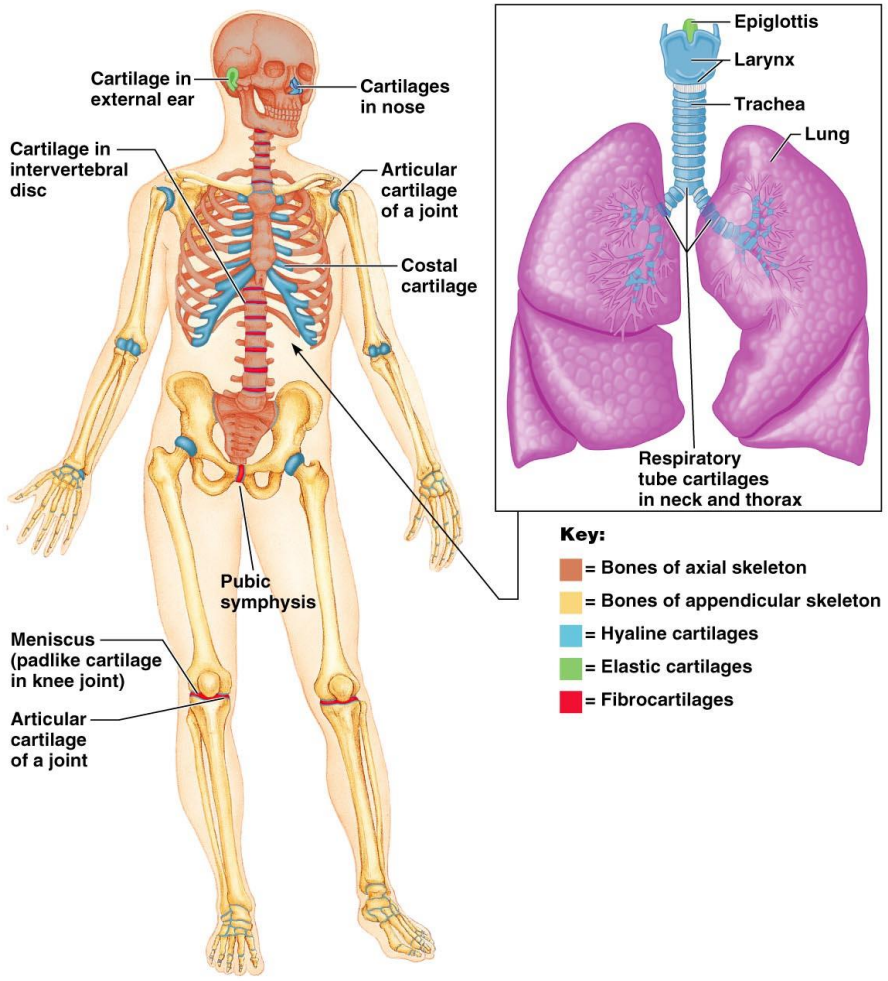
Skeletal Cartilages - Types

- Hyaline
  - Articular – ends of bones
  - Costal – connects ribs to sternum
  - Respiratory - forms skeleton of larynx and reinforce respiratory passageways
  - Nasal – support external nose



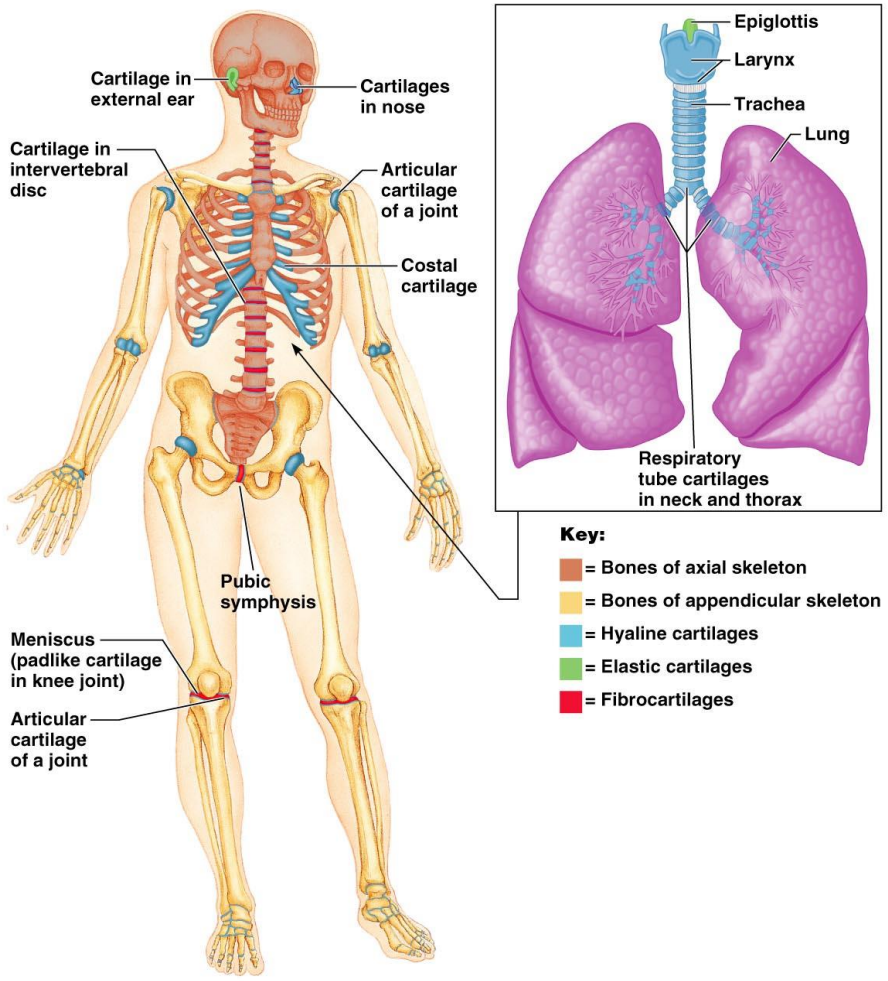
Skeletal Cartilages - Types

- Elastic
  - Able to stand up to repeated bending and twisting
  - Found in external ear and epiglottis



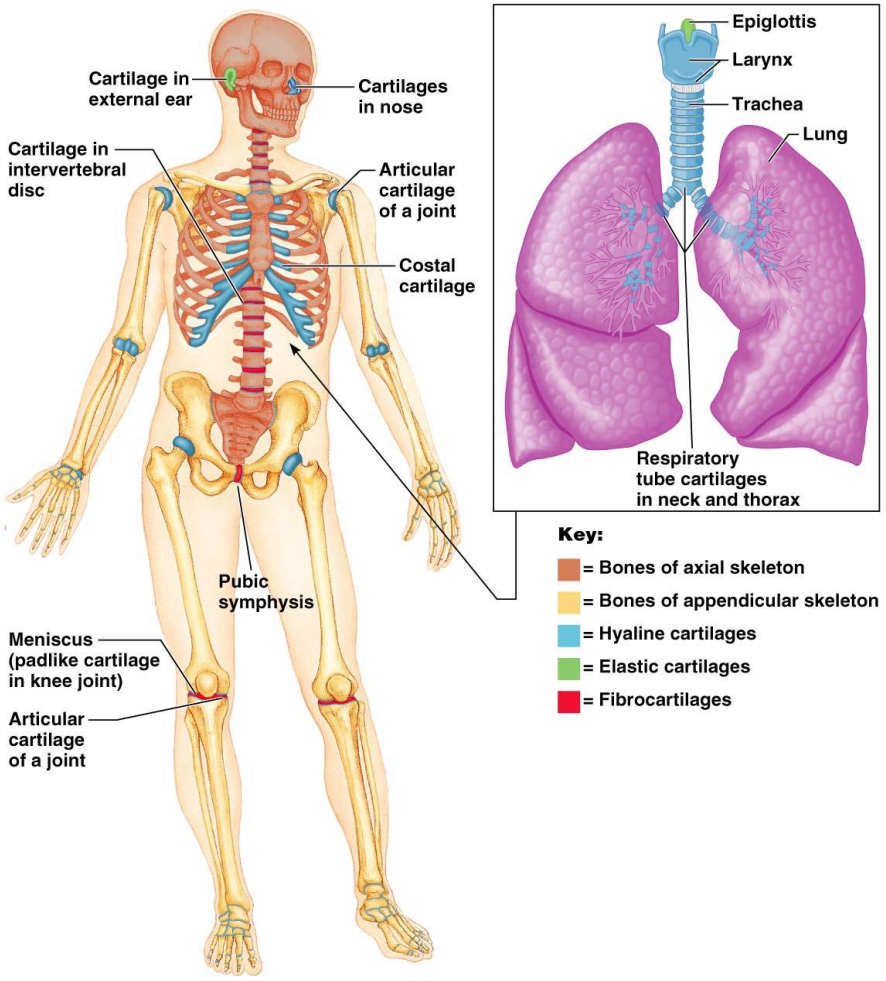
Skeletal Cartilages - Types

- Fibrocartilage
  - Highly compressible and has great tensile strength
  - Found in areas of heavy pressure and stretch
  - Menisci of knee and intervertebral discs

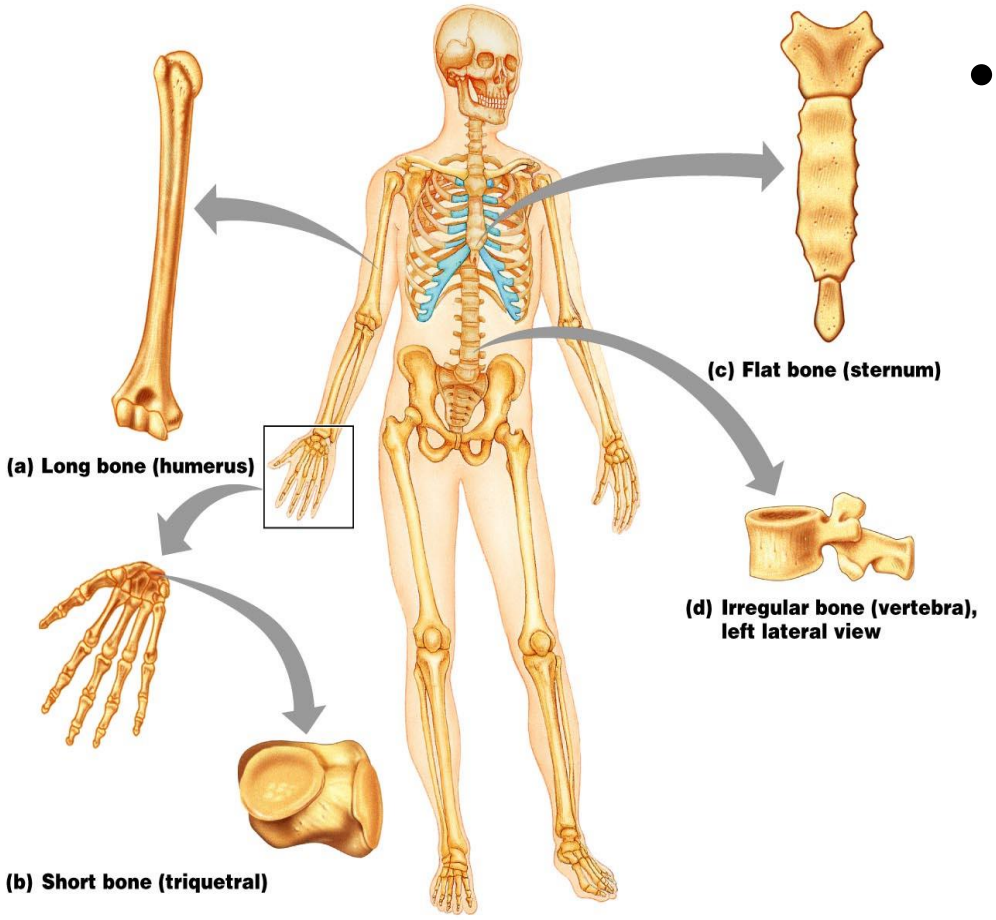


Classification of Bones

- 206 bones in the human body divided into two major sections:
  - Axial skeleton – long axis of body → skull, vertebral column, and ribs
  - Appendicular skeleton – upper and lower limbs and their girdles

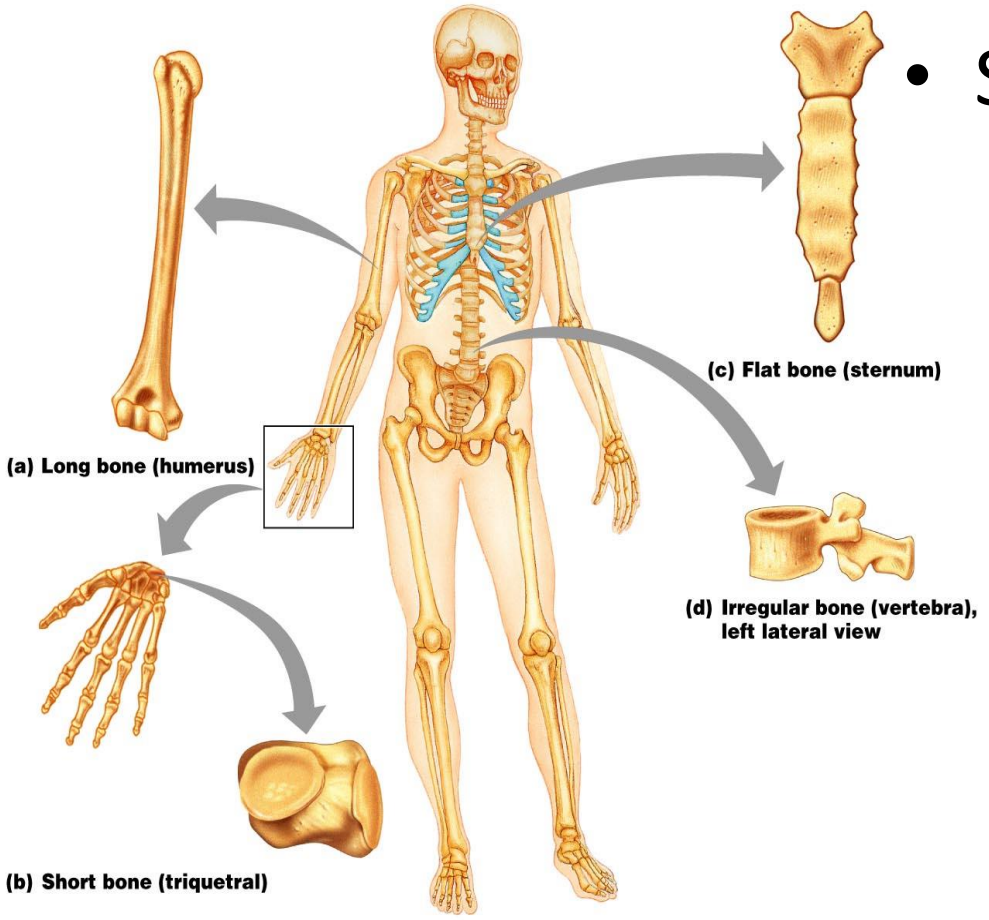


Classification of Bones - Shape



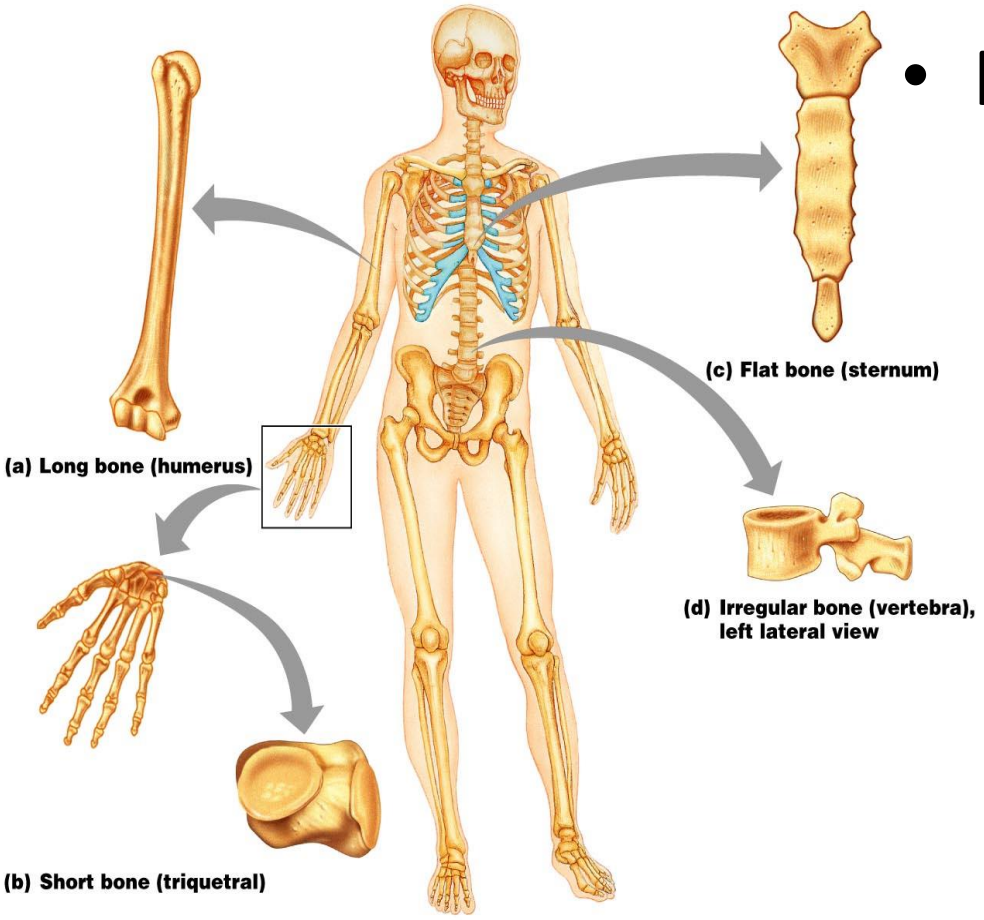
- Long
  - Longer than they are wide.
  - Named for elongated shape not their size

Classification of Bones - Shape



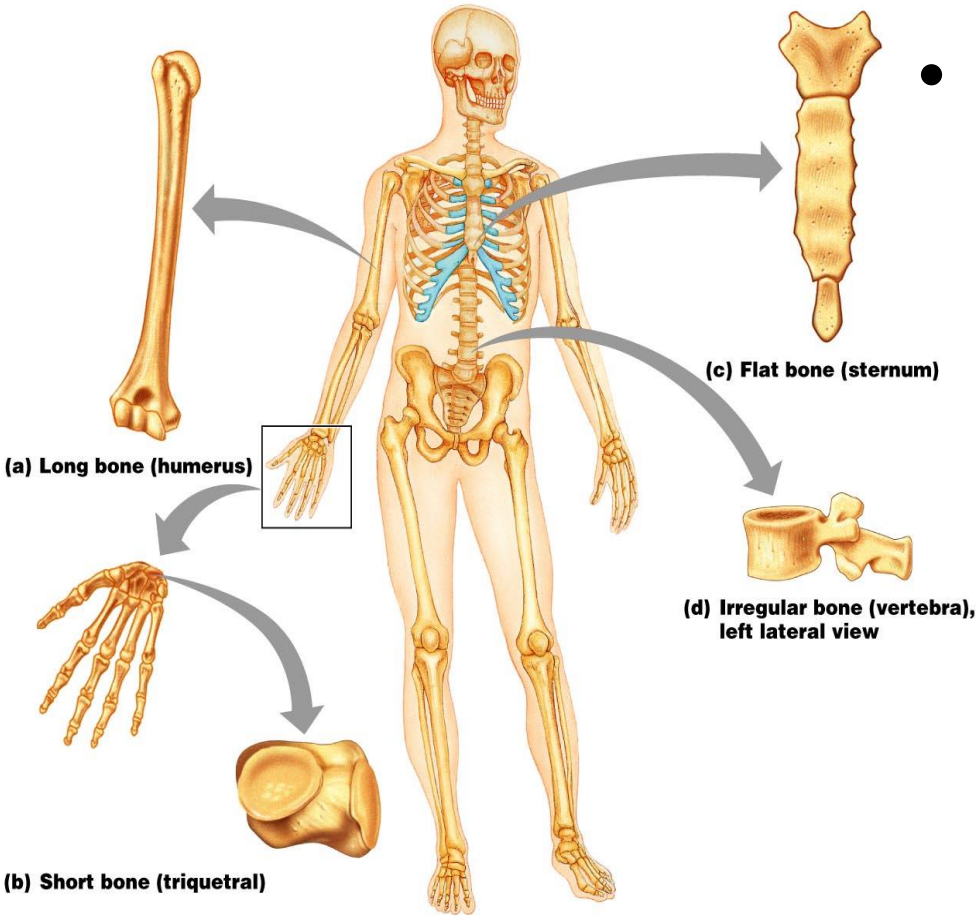
- Short
  - Roughly cubed shaped
  - Seasmoid bones – shaped like a sesame seed – special bones that form in a tendon

Classification of Bones - Shape



- Flat
  - Thin, flattened, and usually a bit curved

Classification of Bones - Shape



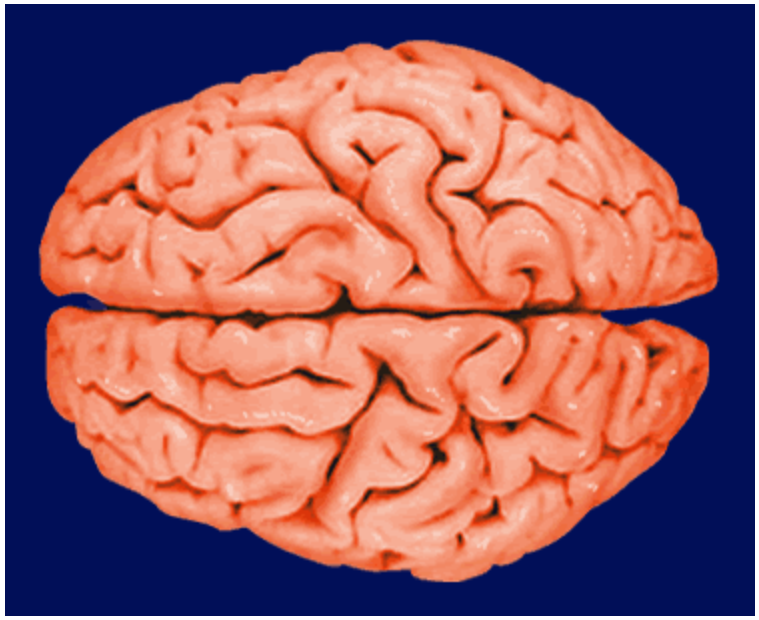
- Irregular
  - Complicated shapes that don't fit into the other classes

Functions of Bones

- Support
  - Provides framework that supports the body and cradles the organs

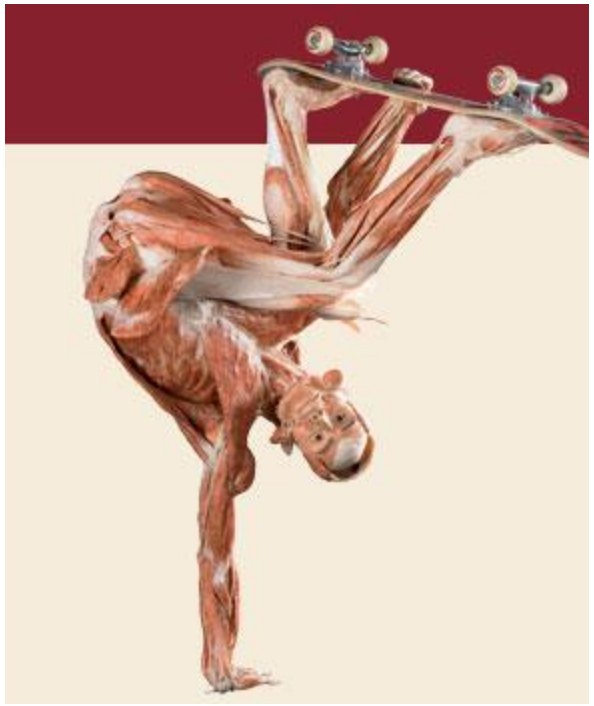
Functions of Bones

- Protection
  - Helps to protect the vital/delicate organs



Functions of Bones

- Movement
  - Skeletal muscles attach to bones (tendons), to use bones as levers for movement



Functions of Bones

- Mineral and growth factor storage
  - Stores calcium and phosphate – released into the blood stream as needed.

Functions of Bones

- Blood cell formation
  - Hematopoiesis – blood cell formation – occurs in the marrow cavities of certain bones

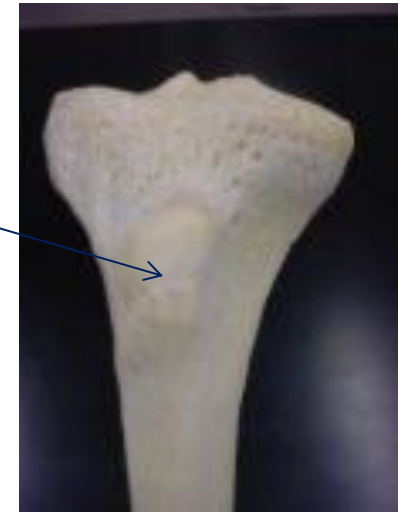
Bone Markings

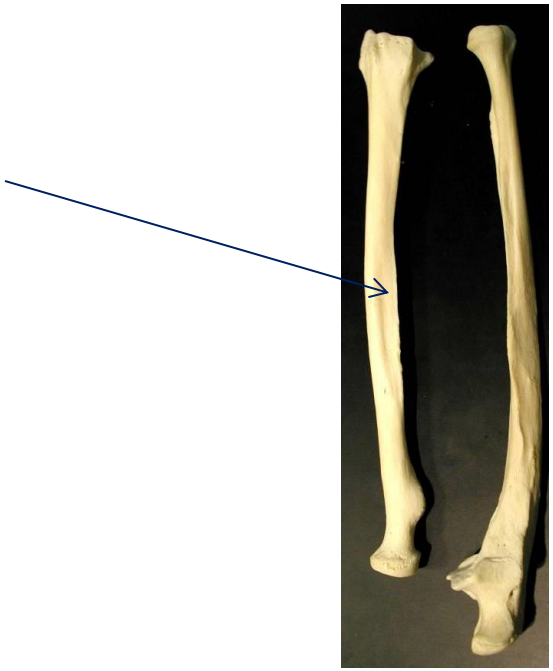
- The external surfaces of bones are rarely smooth and featureless. They display projections, depressions, and openings.
- Serves as sites of muscle, ligament and tendon attachment, joint surfaces or conduits for blood vessels and nerves.

Bone Markings

Projections that are sites of muscle and ligament attachment

- Tuberosity
  - Large rounded projection; may be roughened





- Crest
  - Narrow ridge of bone; usually prominent

Bone Markings

Projections that are sites of muscle and ligament attachment

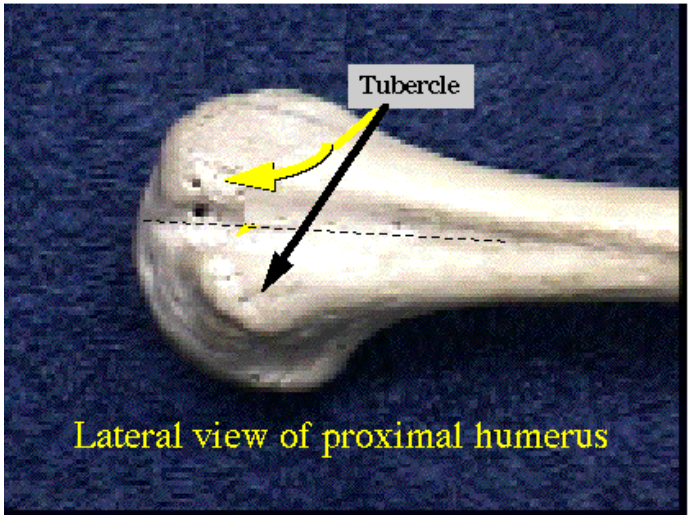
- Trochanter
  - Very large, blunt, irregularly shaped process (only on femur)

- Line
  - Narrow ridge of bone; less prominent than a crest

Bone Markings

Projections that are sites of muscle and ligament attachment

- Tubercle
  - Small rounded projection or process



Epicondlyle

- Raised area on or above a condyle

Bone Markings

Projections that are sites of muscle and ligament attachment

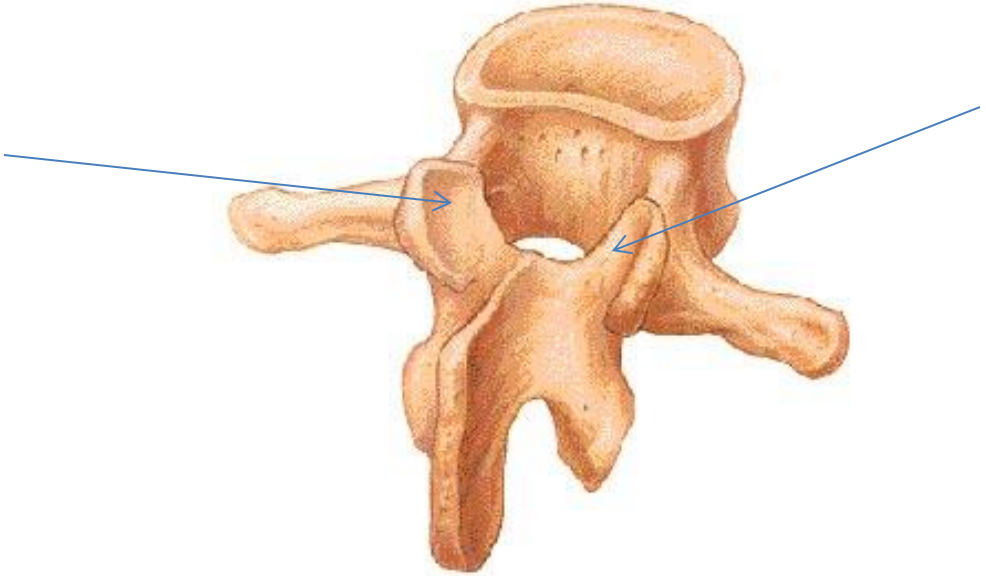
- Spine
  - Sharp, slender, often pointed projection
- Process
  - Any bony prominence

Bone Markings

Projections that help to form joints

- Head
  - Bony expansion carried on a narrow neck

- Facet
  - Smooth, nearly flat articular surface



Bone Markings

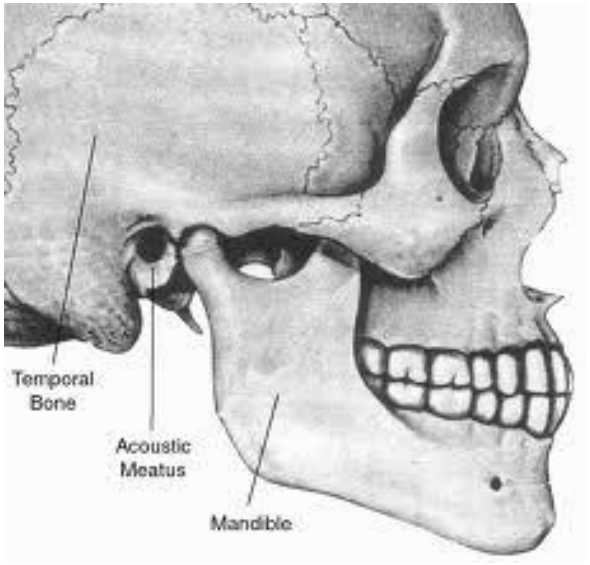
Projections that help to form joints

- Condyle
  - Rounded articular projection

- Ramus
  - Armlike bar of bone

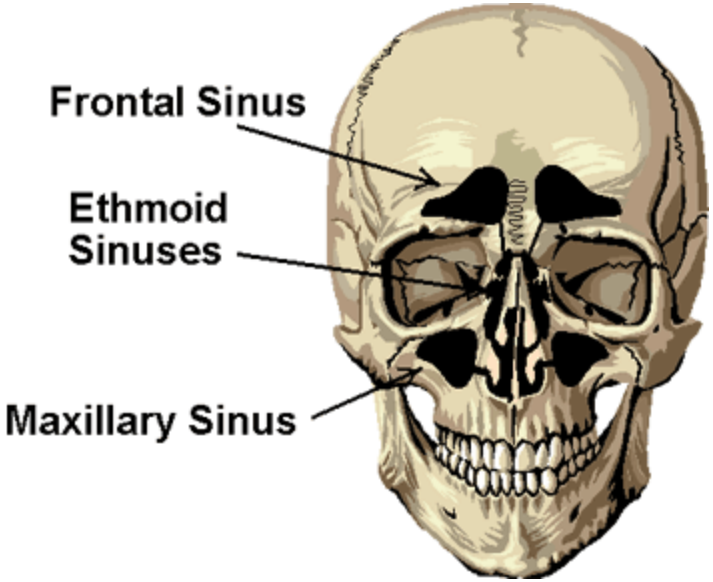
Bone Markings

Depressions and openings allowing blood vessels and nerves to pass



- Meatus
  - Canal-like passageway

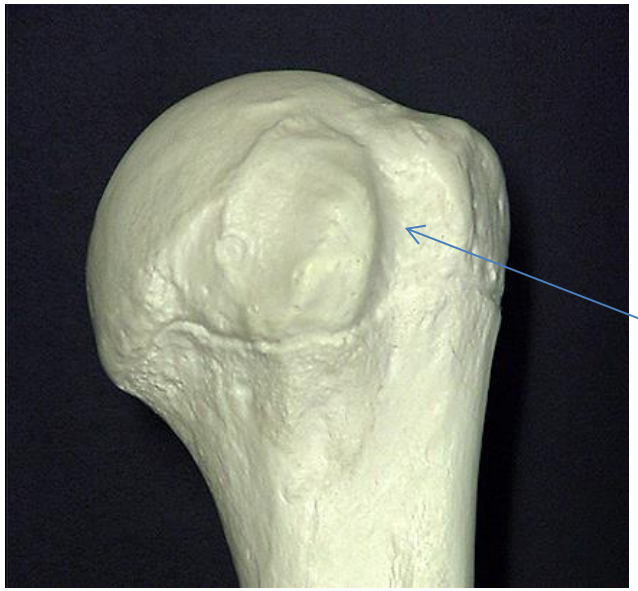
- Sinus
  - Cavity within a bone, filled with air and lined with mucous membrane

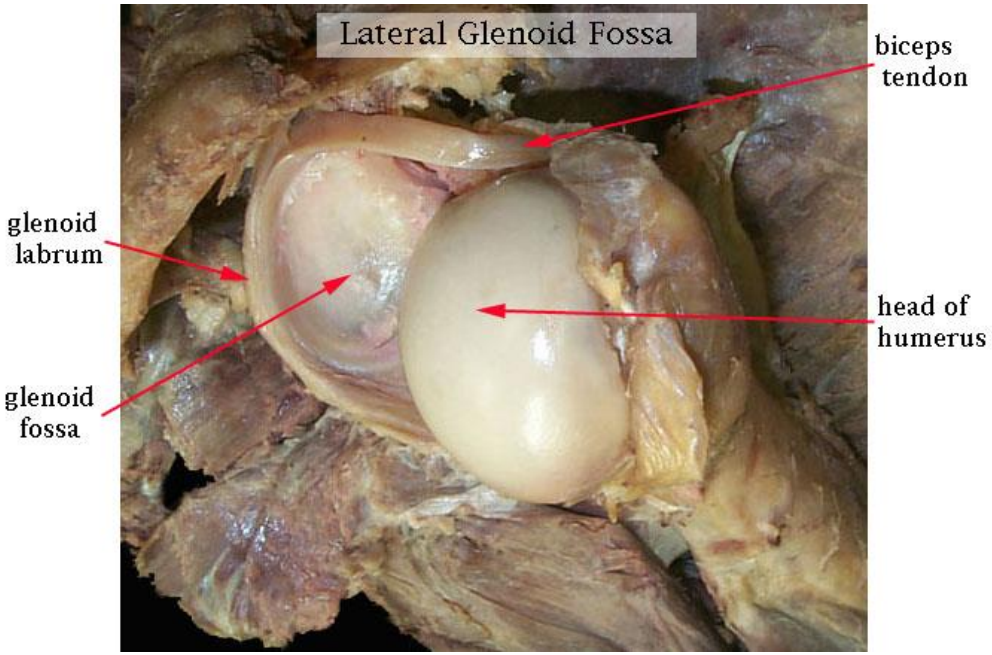


Bone Markings

Depressions and openings allowing blood vessels and nerves to pass

- Fossa
  - Shallow, basinlike depression in a bone, o serving as an articular surface





- Groove
  - furrow

Bone Markings

Depressions and openings allowing blood vessels and nerves to pass

- Fissure
  - Narrow, slit like opening

- Foramen
  - Round or oval opening through a bone