

Chapter 11: Skeletal System

What are the functions of the Skeletal System?

- Supports the body
- Protects the soft body parts
- Produces blood cells
- Stores minerals (calcium and phosphate) and fat
- Allows for movement by attaching muscles

What is the anatomy of a long bone?

- Articular cartilage – hyaline cartilage found on the ends of long bones
- Yellow bone marrow – stores fat
- Red bone marrow – makes blood cells; found in spongy bone and flat bones
- Periosteum – living, outer covering of fibrous connective tissue
- Ligaments – fibrous connective tissue that connects bones

Diaphysis – shaft of the bone made of compact bone and filled with yellow marrow

Epiphysis – ends of the bone made mostly of spongy bone

Compact bone - is composed of osteons with a central canal containing blood vessels. Contains living bone cells called osteocytes in chambers called lacunae.

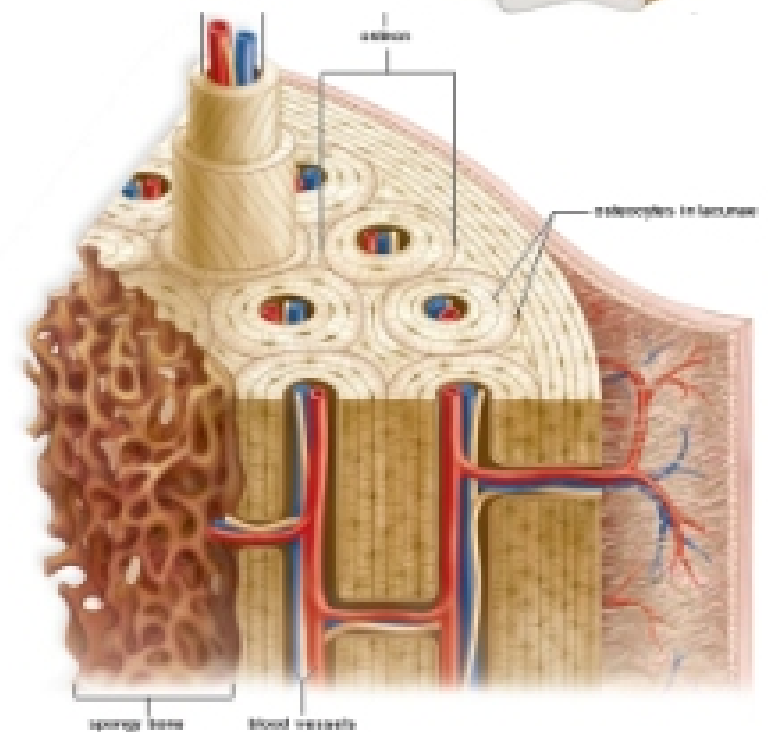
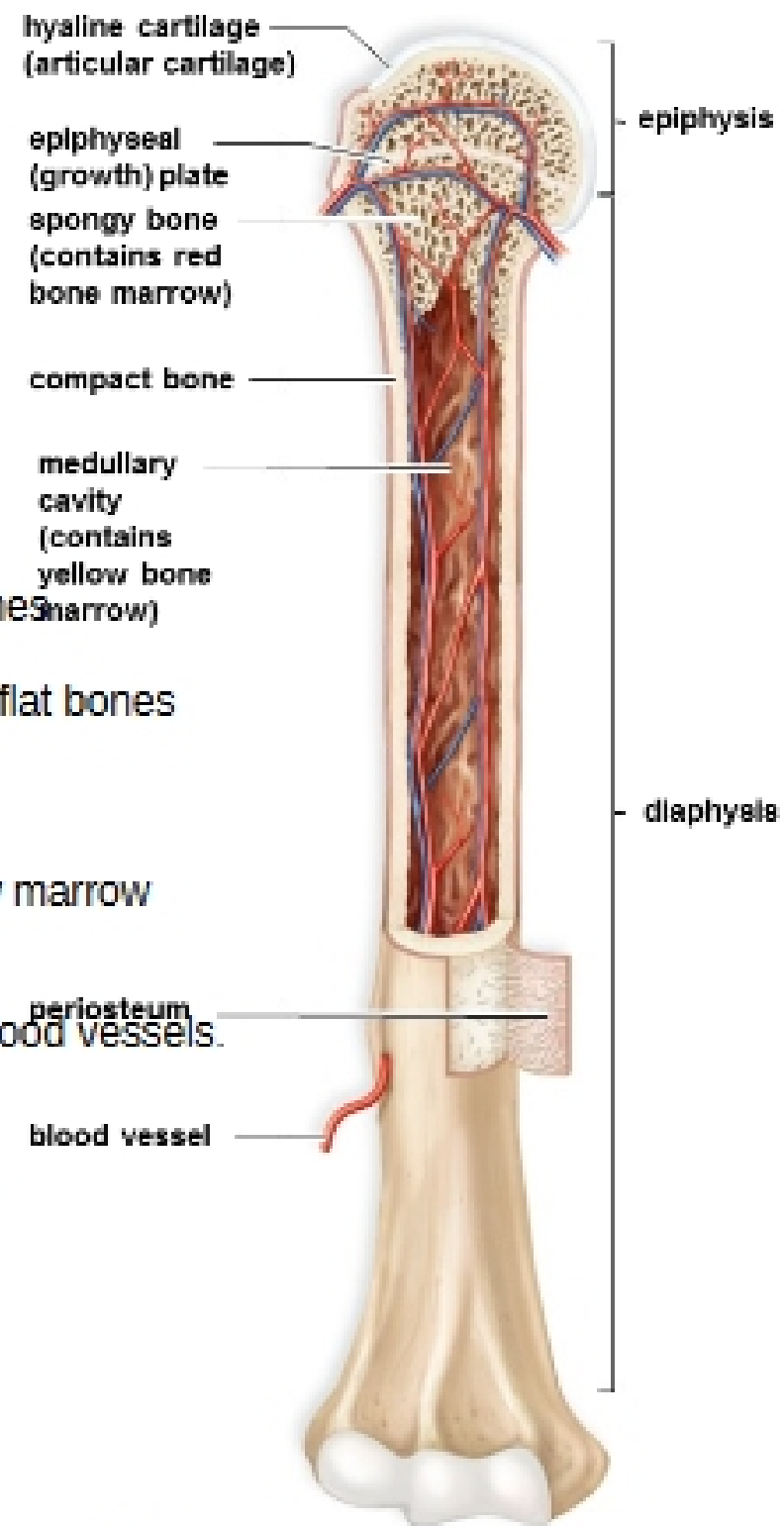
Spongy bone - is made of plates with spaces filled with red bone marrow.

Important cells in bone growth, remodeling and repair:

- Osteoblasts – bone-forming cells
- Osteocytes – mature bone cells that maintain bone structure derived from osteoblasts
- Osteoclasts – bone-absorbing cells
- Chondrocytes – cartilage-forming cells

The axial skeleton

- Skull – made of cranium and facial bones
 - The cranium
 - Protects the brain.
 - Is composed of 8 bones.
 - Has some bones that contain the sinuses.
- Hyoid bone
- Vertebral column – vertebrae and intervertebral disks
- Rib cage – ribs and sternum



The 206 bones of the body

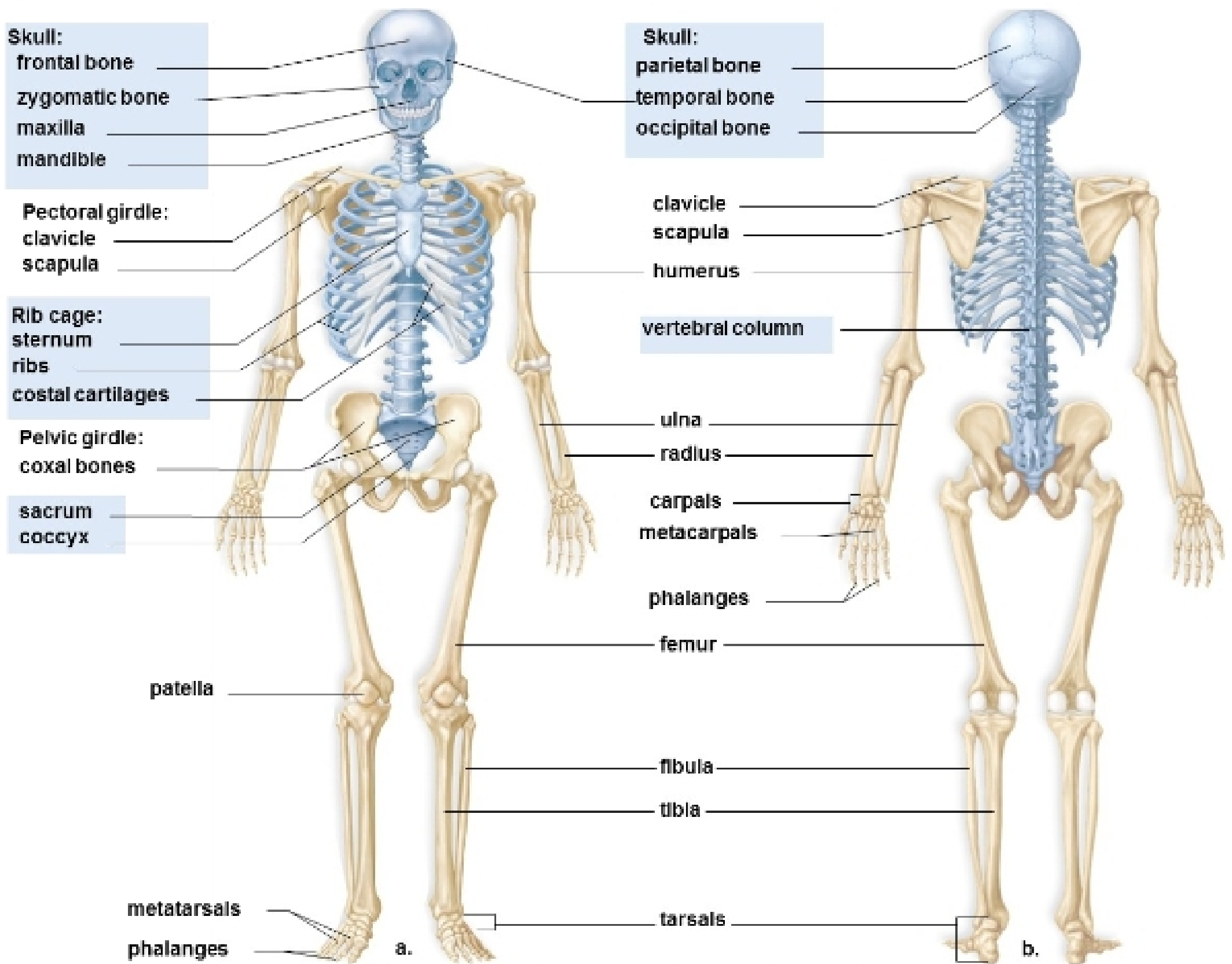
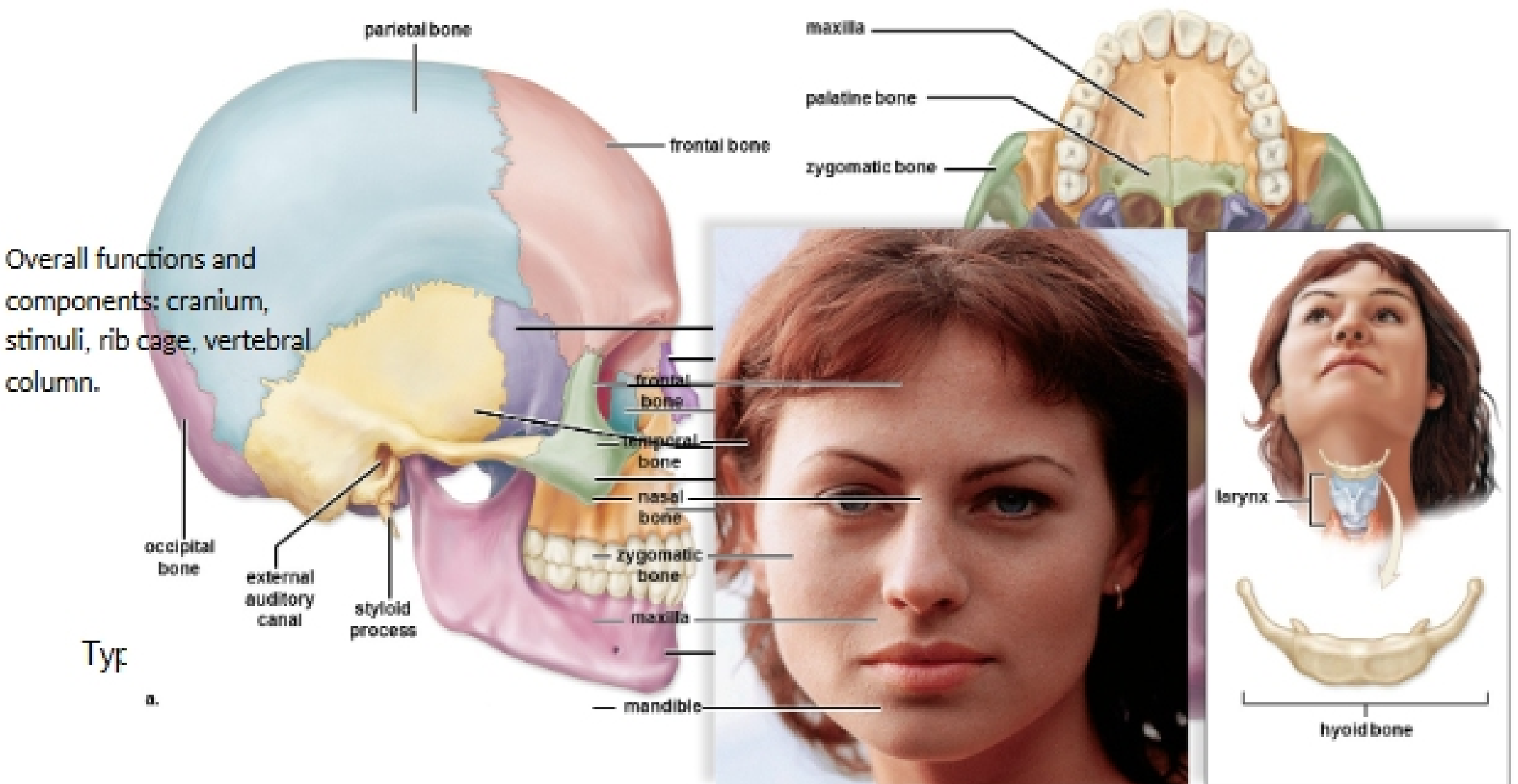


Figure 11.2 The axial and appendicular skeletons.



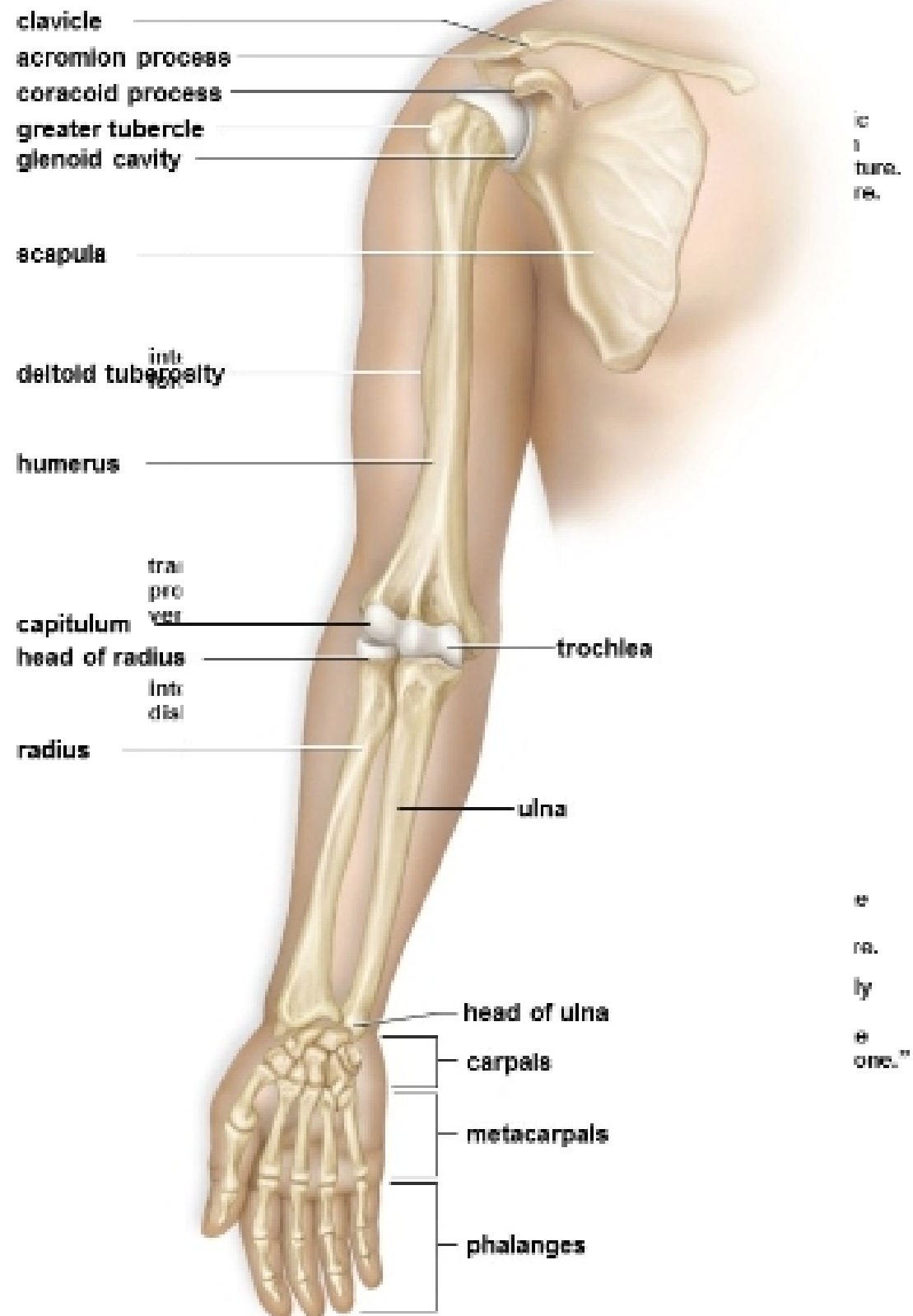
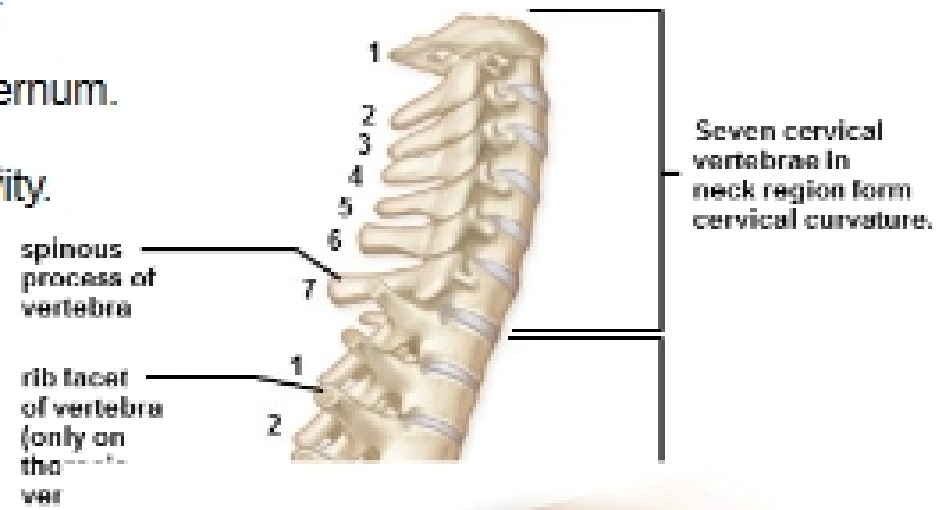
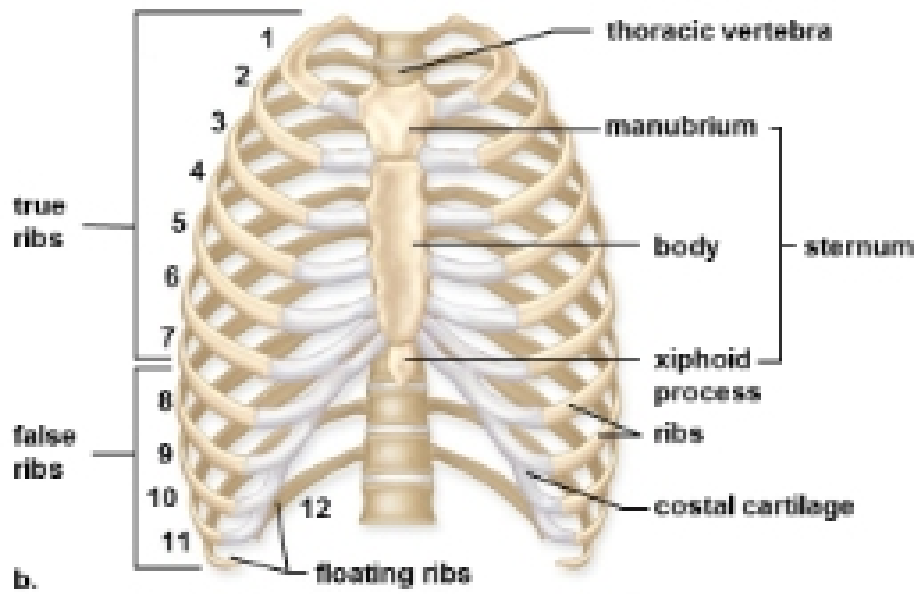
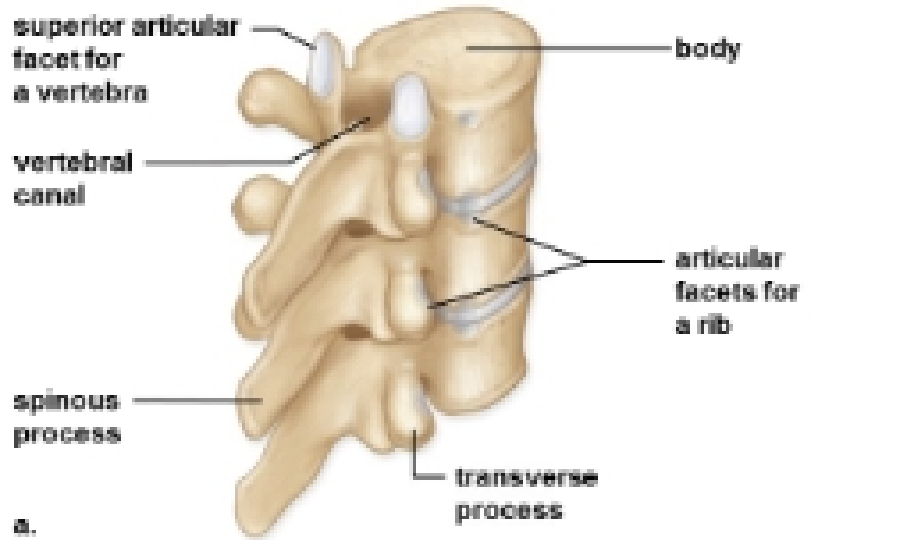
- 33 vertebrae
 - Cervical (7)
 - Thoracic (12)
 - Lumbar (5)
 - Sacrum (5 fused)
 - Coccyx (4 fused into tailbone)

Intervertebral disks

- Fibrocartilage between vertebrae

The rib cage

- Rib(s)
 - Protect the heart and lungs
 - Flattened bone originating from thoracic vertebrae
 - 12 pairs
 - 7 pairs true ribs: start connecting at the Sternum.
 - 3 pairs false ribs: connected to true ribs.
 - 2 pairs floating ribs: floating in thoracic cavity.
- Sternum: Known as breastbone



The appendicular skeleton