

Intro to the Skeleton

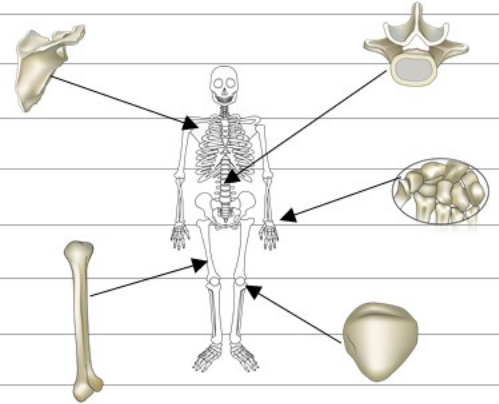
What are the functions of the skeletal system?

1. Support-
2. Protection-
3. Movement-
4. Storage-
5. Manufacturing-

How are bones classified?

Bones are a solid _____ of living _____ and _____ surrounded by _____ deposits.

Bones are classified by their _____.



Label the bone shapes above.

What are the anatomical features of a long bone?

Long bones have 2 basic regions:

-
-

Between these layers is a thin layer of internal _____ called the _____ (growth plate).

The ends of the epiphyses are covered with an external layer of cartilage called _____ which provides smooth _____ of joints and cushion from _____.

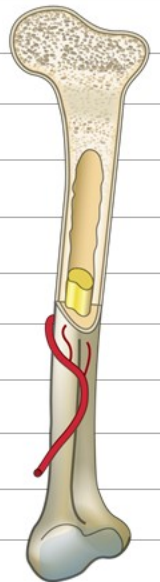
In the diaphysis of the long bone, a hollow _____ cavity is found.

_____ bone marrow fills the cavity in young people.

Age causes the red marrow to be replaced with fatty _____ bone marrow.

It is within the bone marrow that new

_____ are produced (called _____).



Label the diaphysis, epiphyses, and medullary cavity.

Summary:

The skeletal system provides many _____ for the body. Bones are classified by _____ and have a specific structure with bone _____ in the center of the _____ and articular _____ surrounding the _____.

Microscopic Anatomy of Bone

Where are spongy bone and compact bone found?

The outer layer of bone is made of tough connective tissue called _____.
It is the location of _____ attachment and bone _____.
Beneath the periosteum is a thick layer of _____. At the ends of long bones the _____ is beneath the compact bone.

How do spongy and compact bone differ?

Spongy bone is a lattice of _____ ("little beams") that are found along _____ of _____ for perfect resistance from _____.
Between the trabeculae are spaces filled with _____ or blood vessels.



Compact bone is arranged in _____ called _____.

Osteons are arranged in concentric circles called _____.



These lamellae surround a _____ (or _____) _____ that contains blood vessels and nerves.

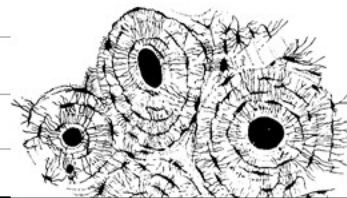
Label the trabeculae and osteons in the images above.

The central canals are connected by _____ (_____) _____ running perpendicularly.

What are the types and functions of specialized bone cells?

	Osteocytes	Osteoclasts	Osteoblasts
Function:			

Canaliculi _____ all bone cells, allowing them to receive _____ and remove _____.



Label the canaliculi.

Summary: _____ bone contains large spaces while compact bone is made of column-shaped _____. Specialized bone cells build and _____ bone, while _____ keep the bone cells connected to nutrients.

Bone Formation and Remodeling

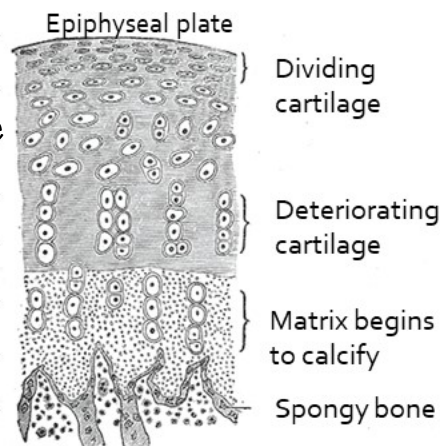
How is bone formed?

An embryo's skeleton is made of _____. Near the third month of embryo development, _____ begin to secrete _____ deposits that replace the _____. The osteoblasts then mature into _____.

This process of incorporating _____ & _____ into _____ to become bone is known as _____.

As a child grows, tall columns of _____ (cartilage cells) at the _____ plate divide and then deteriorate as the matrix around them _____. These cells are then known as _____, which form spongy bone.

Osteoclasts secrete _____ to enlarge the _____ as the bone grows so that _____ is available for all cells.



What is the composition of bone?

Osteoid (Organic)	Mineral Salts (Inorganic)

How are bones remodeled?

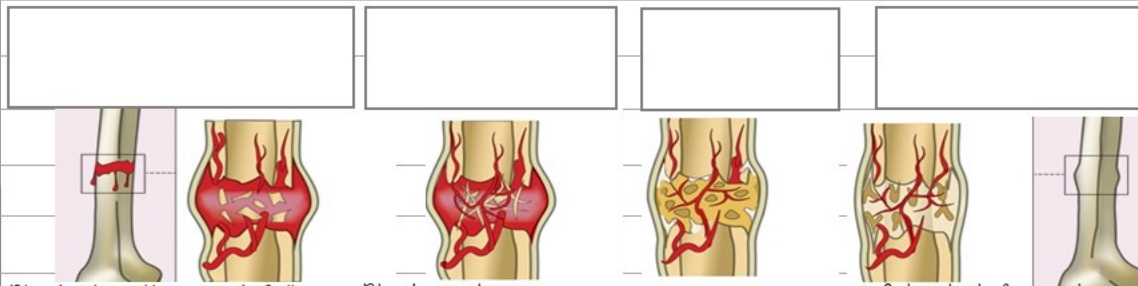
Because calcium is so important in your body, a certain level needs to be maintained in your _____ at all times. To maintain that level, bone is created or dissolved.

Think of your bones as a _____ for calcium.

There are 2 hormones that trigger these processes:

1. _____ - deposits extra calcium from blood into bones
2. _____ - stimulates osteoclasts to break down bone, adding calcium to blood

How is a broken bone repaired?



Blood enters the wound. Cells begin to die. Phagocytes ingest dead bone cells and debris.

Blood vessels grow. Cartilage forms to hold the bone together.

Spongy bone forms to replace the cartilage.

Osteoclasts form a larger medullary cavity. Spongy bone is converted to compact bone.

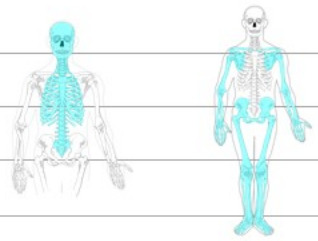
Summary:

Bone is formed as _____ calcifies. The osteoid portion of the bone provides _____ while mineral salts give bones _____. _____ direct the constant remodeling of bone. When a bone is broken, a _____ forms, followed by a callus to repair the fracture.

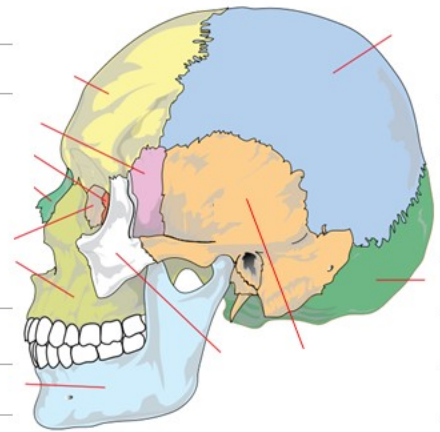
The Axial Skeleton

What are the 2 major sections of the skeleton?

1.
2.



What bones are found within the axial skeleton?



What is the structure of the vertebral column?

The vertebral column extends from the _____ to the _____. It provides _____ and protects the _____ running through it.

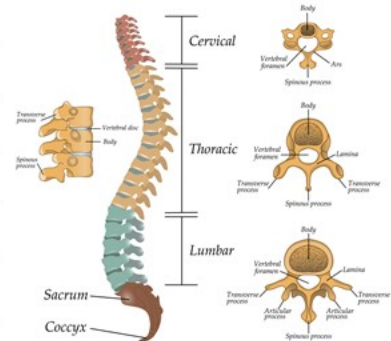
It consists of _____ vertebrae at birth, but the 5 sacral vertebrae and 4 vertebrae of the coccyx _____ in _____.

The remaining vertebrae are separated by _____ that provide _____ and absorb _____.

The spine is _____ curved at birth, but two portions (in the cervical and lumbar vertebrae) develop _____ curves later in life.

The _____ (convex) and _____ (concave) curvatures of the spine allow for better _____ and distribution of _____ throughout the body.

The structure of the segments of the spine

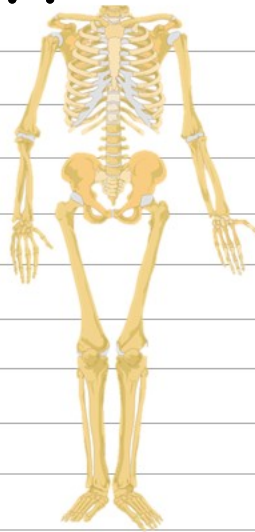


Summary:

The skeleton is divided into _____ and appendicular portions. Within the _____ skeleton are the _____, vertebral column and ribs. The vertebral column has 5 sections. The sections that aren't _____ together have _____ discs for cushioning.

Movement of the Appendicular Skeleton

What bones are found within the appendicular skeleton?



How do joints differ structurally?

There are 3 structural types of joints:

	Fibrous	Cartilaginous	Synovial
Description:			
Example:			

What is the structure of synovial joints?

A joint _____ filled with _____ surrounds the end of the bones.

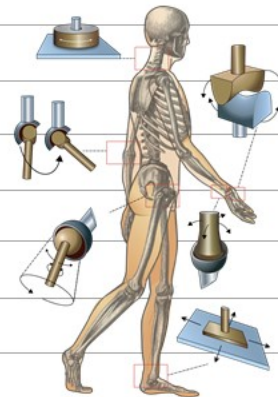
A synovial _____ and _____ line the joint cavity.

How do ligaments and tendons differ?

What are the types of synovial joints?

Label the following types of joints on the image:

*pivot joint, ball & socket joint,
saddle joint, gliding/plane joint,
hinge joint, condylar joint*



Summary:

The _____ skeleton consists of the pelvis, legs, and arms. The bones of the skeleton are connected by _____, which vary in _____ and function. _____ joints are the most moveable and can provide a range of movements based on the shape of the bones involved.