Skeletal System=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

  Functions of Bones:

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ body and cradle soft organs

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vital organs

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ muscles move bones

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of minerals (Ca and P) and growth factors

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in bone marrow

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



|  |  |  |
| --- | --- | --- |
| **Classification** | **Description** | **Example** |
| Long bones |  |  |
| Short bones |  |  |
| Flat bones |  |  |
| Irregular bones |  |  |

Adult= \_\_\_\_\_\_\_\_\_\_\_\_

Types of bone tissue:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone: outer layer – dense & solid

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone: inner layer - open spaces, marrow

Features: Very hard (calcium salts), Light weight, Ability to resist tension and forces (collagen fibers)

**Bone Development**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (ossification): bone tissue formation

Stages:

1. Begins at 8 weeks gestation
2. Start as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ → replaced by bone
3. Post-natal bone growth → early adulthood
4. Epiphyseal plates: (growth plates) regions where long bones lengthen
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth: bones increase in thickness
6. Bone modeling and repair – \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hormonal control:

* Growth hormones: stimulate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone growth
* Thyroid hormone: control activity of growth \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Testosterone & estrogens (at puberty): Adolescent growth spurt
* Close epiphyseal plates → end growth

Bone cells:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: bone-forming cells
* Osteocytes: mature bone cell (doesn’t divide)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: dissolve/break down bone (bone resorption)

**Fractures/Breaks**

Classified by:

1. Position of bone – nondisplaced (normal) or displaced (bone out of alignment)
2. Completeness of break – complete (broken through) or incomplete
3. Orientation to long axis of bone – linear (parallel to bone) or transverse (perpendicular to bone)
4. If bone penetrates skin – open (compound) fracture or closed (simple) fracture

|  |  |  |
| --- | --- | --- |
| Fracture Type | Description | Drawing |
| Comminuted |  |  |
| Compression |  |  |
| Spiral |  |  |
| Epiphyseal |  |  |
| Depressed |  |  |
| Greenstick |  |  |