

# Examining Bones – inside and out

In this lab activity you will be moving around to several stations, making observations of internal bone anatomy, examining fractures and determining forces involved, examining bones to determine gender, height and age.

Be thorough in your observations.

## ***Pre-Lab:***

1. Identify two examples of each category of bone: flat bone, irregular bone, long bone, short bone
2. What is the function of:
  - a. compact bone?
  - b. red bone marrow?
  - c. yellow bone marrow?

## **Station 1: Internal Bone Anatomy**

- Create a drawing of the tibia
- label: compact bone, spongy bone, marrow cavity
- measure the thickness of the compact bone across the middle of the diaphysis
- measure the diameter of the bone across the middle of the diaphysis

## **Station 2: Microscopic Anatomy – Cross section of Compact Bone**

- Draw the cross section of the bone as viewed through the microscope
- label a Haversian canal and an osteocyte
- include the total magnification (magnification of eyepiece x magnification of objective lens)

## **Station 3: Microscopic Anatomy – Cross section of Compact Bone, decalcified**

- Draw the cross section of the bone as viewed through the microscope
- label a Haversian canal and an osteocyte
- include the total magnification

## **Station 4: Microscopic Anatomy – Cross section of Spongy bone**

- Draw the cross section of the bone as viewed through the microscope
- label the bone marrow and the bony trabeculae
- include the total magnification

## **Station 5: Bone Fractures – Bone 1**

- Sketch the bone, noting the fracture and the healed area (callus)
- identify the type of fracture and the most likely force used on this bone

### **Station 6: Bone Fractures – Bone 2**

- Sketch the bone, noting the fracture and the healed area (callus)
- identify the type of fracture and the most likely force used on this bone

### **Station 7: Bone Fractures – Bone 3**

- Sketch the bone, noting the fracture and the healed area (callus)
- identify the type of fracture and the most likely force used on this bone

### **Station 8: Bone Fractures – Skull images**

- Describe the damage done to each skull
- Identify the type of trauma for each skull
- Identify the gender of each skull

### **Stations 9 – 17**

While digging a foundation for a new building, construction workers found some buried bones that appeared to be human. Thinking they were being helpful and not wanting to delay their project, after all, time is money, the construction workers placed the bones into a box and took them to the nearest police station. The police identified the bones as human and have asked you to examine the bones and to provide as much information as possible about them.

#### **For each bone . . .**

- sketch the bone, indicating on your sketch any unusual markings found on the bone
- identify the bone, including left or right as it applies
- classify the bone into one of the four categories (see pre-lab for list)
- measure the bone – length only if long bone, length and width for all others
- fused or not – applies to long bones and skull; make sure this is shown on your sketch
- for the long bones – determine the approximate height; assume all long bones are from a Caucasian male
- skull and pelvis – identify gender and give 1-2 reasons for your decision
- also for the skull – identify/describe teeth if present; approximate age??