Identification and demonstration of a bone in anatomical position

This is a **practical anatomy exercise**. The exact description varies according to the bone presented. A systematic method can be used for **any bone of the upper or lower limb**.

1. Identification of the bone

First identify:

- **Name of the bone**
- **Side** — right or left
- Whether it is a **long, short, flat, irregular or sesamoid bone**
- Important **landmarks and processes**
- Its characteristic **articular surfaces**

How to determine the side

Use the following sequence:

1. Identify the major anatomical landmarks.
2. Identify the articular surfaces.
3. Determine which surface is anterior/posterior.
4. Determine which surface is medial/lateral.
5. Place the bone in its **normal anatomical position**.
6. Confirm whether it belongs to the right or left side.

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2. Holding the bone in anatomical position

The bone should be held so that its surfaces and landmarks correspond to their position in the living body.

General principles

- **Anterior surface** faces forward.
- **Posterior surface** faces backward.
- **Medial surface** faces towards the midline.
- **Lateral surface** faces away from the midline.

- Superior and inferior relationships should also be maintained.

Practical demonstration

Hold the bone in front of the examiner and state:

> **“This is the ___ bone. It is from the right/left side and is placed in its anatomical position.”**

Then point out:

- Anterior/posterior surfaces
- Medial/lateral borders
- Superior/inferior ends
- Proximal/distal ends

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3. Describe the salient features

The description should proceed **from proximal to distal**.

A. Proximal end

Identify:

- Head
- Neck
- Articular surfaces
- Processes
- Tubercle/tuberosity
- Condyle/epicondyle where present

State the structures clearly while pointing to them on the specimen.

B. Shaft

Describe:

- Shape
- Borders
- Surfaces
- Grooves
- Nutrient foramen
- Important impressions
- Interosseous borders where present

C. Distal end

Identify:

- Articular surfaces
- Condyles
- Epicondyles
- Processes
- Fossae
- Important grooves and notches

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4. Articulations

For every bone, identify **the joints formed by the bone**.

State:

1. **Name of the articulating bone**
2. **Articular surface**
3. **Type of joint**, where relevant

For example:

> “The head of the humerus articulates with the glenoid cavity of the scapula to form the shoulder joint, a synovial ball-and-socket joint.”

Also identify important **proximal and distal articulations**.

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5. Demonstration of muscle attachments

Muscle attachments should be demonstrated systematically.

A. Identify the attachment site

Point out the exact:

- Origin
- Insertion
- Tendinous attachment
- Aponeurotic attachment

on the bone.

B. Divide muscles into groups

A useful practical method is:

1. Muscles attached to proximal end

Point out the muscles attached around the proximal epiphysis.

2. Muscles attached to shaft

Identify attachments on:

- Anterior surface
- Posterior surface
- Medial surface
- Lateral surface
- Borders

3. Muscles attached to distal end

Identify muscles attached to:

- Condyles
- Epicondyles
- Tuberosities
- Processes

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6. Demonstration technique in practical examination

For each muscle, say:

> **"This muscle is _____. It originates from _____ and is inserted into _____."**

Then physically point to the corresponding area on the bone.

If required, add:

- **Nerve supply**
- **Action**
- Clinical importance

However, the primary requirement here is to **demonstrate the attachment on the bone**.

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7. Important distinction: origin vs insertion

As a general rule:

- **Origin** → usually the relatively fixed attachment.
- **Insertion** → usually the attachment that moves during contraction.

But this is not absolute; muscles can reverse their action depending on which attachment is fixed.

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8. Practical examination sequence

A good sequence for any bone is:

Identify → Side → Anatomical position → Ends → Shaft → Surfaces/borders → Articulations → Muscle attachments → Applied anatomy

Model answer

> **"This is the ___ bone. It belongs to the ___ side. I will hold it in the anatomical position with its anterior surface directed forwards and medial surface towards the midline.**
>
> **The bone has a proximal end, shaft and distal end. The important features are ___, ___ and ___.**
>
> **It articulates with ___ at the proximal end and ___ at the distal end.**
>
> **The important muscle attachments are ___, ___ and ___. I will demonstrate each attachment on the specimen."**

High-yield practical checklist

Step	What to demonstrate

1. Identify	Bone and type
2. Side	Right/left
3. Position	Anatomical position
4. Proximal end	Landmarks and articular surface
5. Shaft	Borders, surfaces, foramina
6. Distal end	Landmarks and articular surfaces
7. Articulations	Bones + joints
8. Muscle groups	Origins and insertions
9. Nerve supply	If asked
10. Applied anatomy	One or two important clinical points

For an actual spotter/viva, the answer must then be made bone-specific—for example, clavicle, scapula, humerus, radius, ulna, hip bone, femur, tibia, fibula, or a bone of the hand/foot.