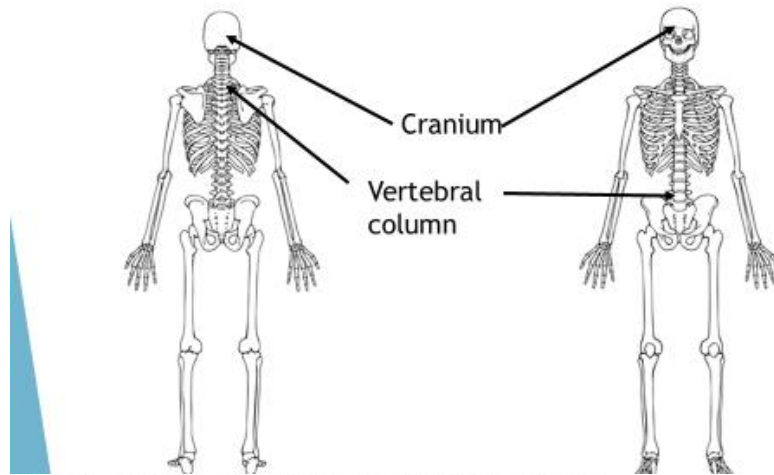


SKELTAL SYSTEM KS3 REVISION SHEETS

YEAR 7

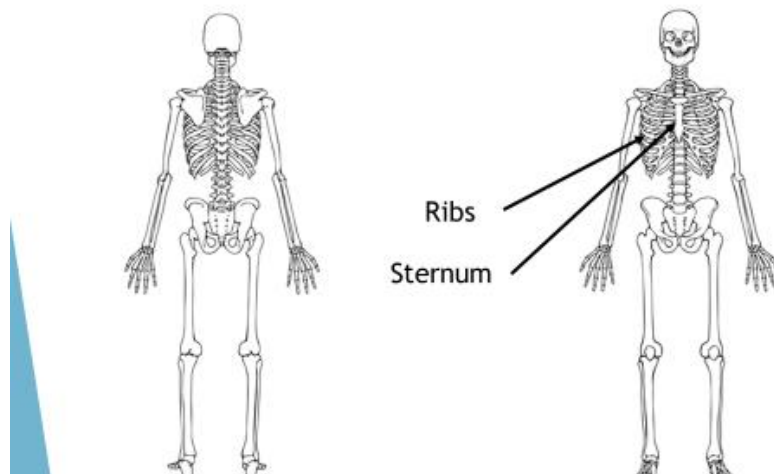
Unit 1.1.a - The Structure and Function of the Skeletal System

The Head/Neck Joint



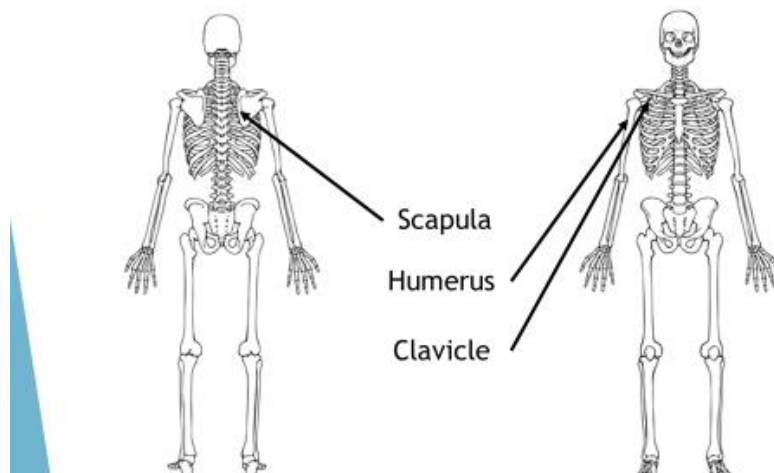
Unit 1.1.a - The Structure and Function of the Skeletal System

The Chest Region

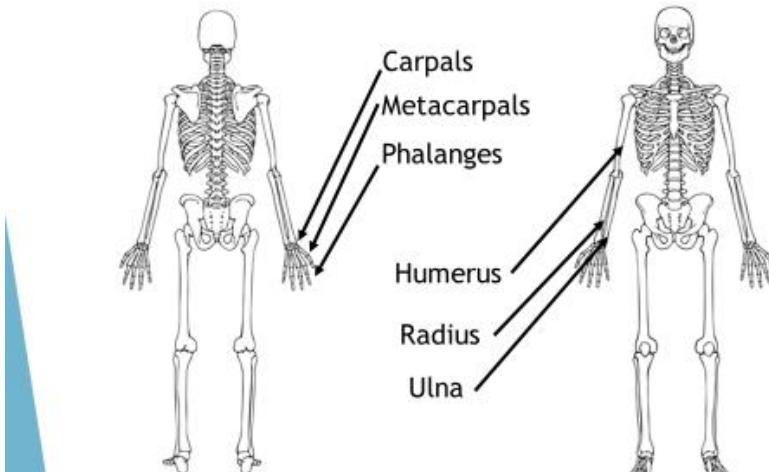


Unit 1.1.a - The Structure and Function of the Skeletal System

The Shoulder Joint

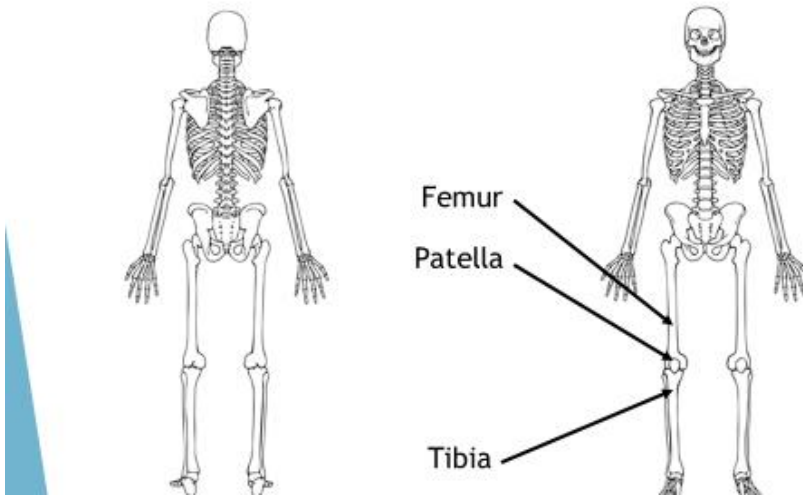


The Elbow Joint



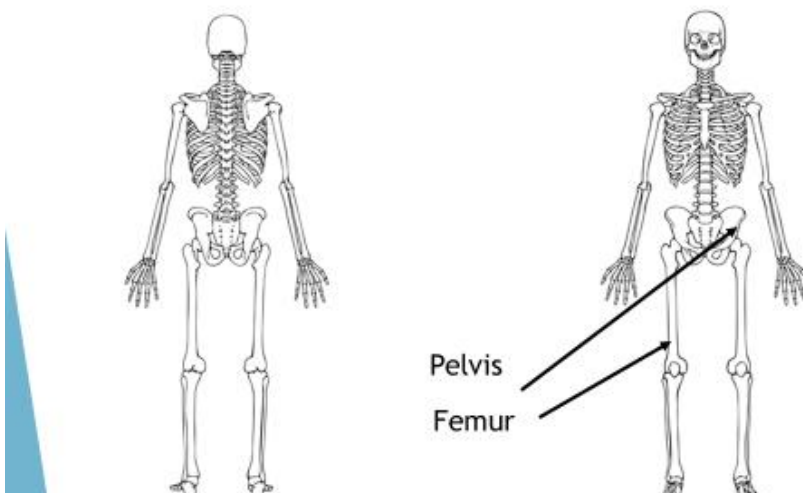
Unit 1.1.a - The Structure and Function of the Skeletal System

The Knee Joint

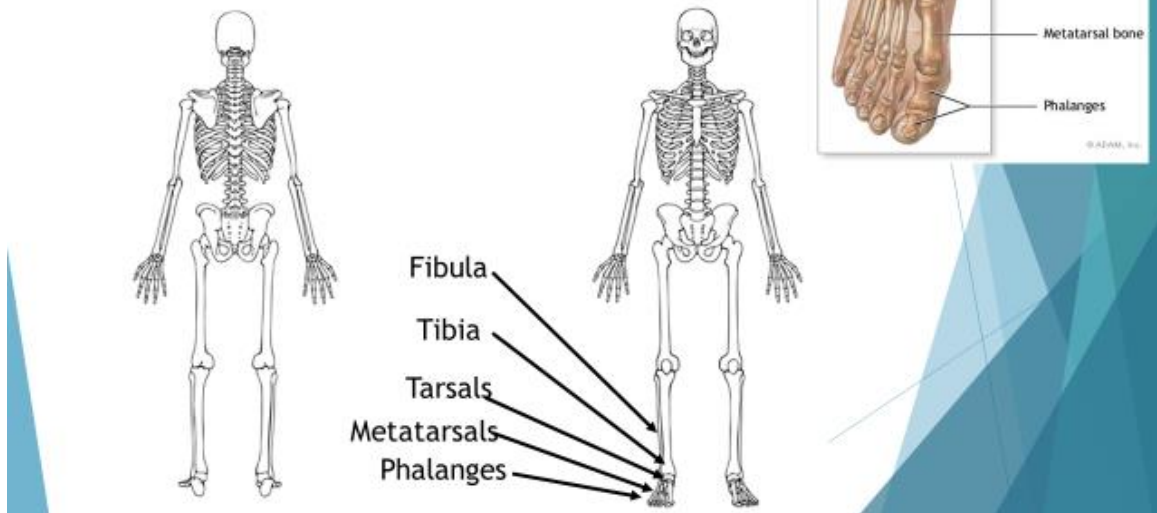


Unit 1.1.a - The Structure and Function of the Skeletal System

The Hip Joint

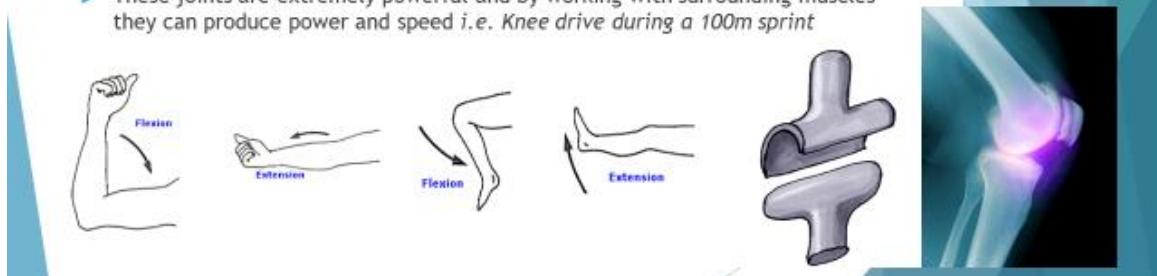


The Ankle Joint



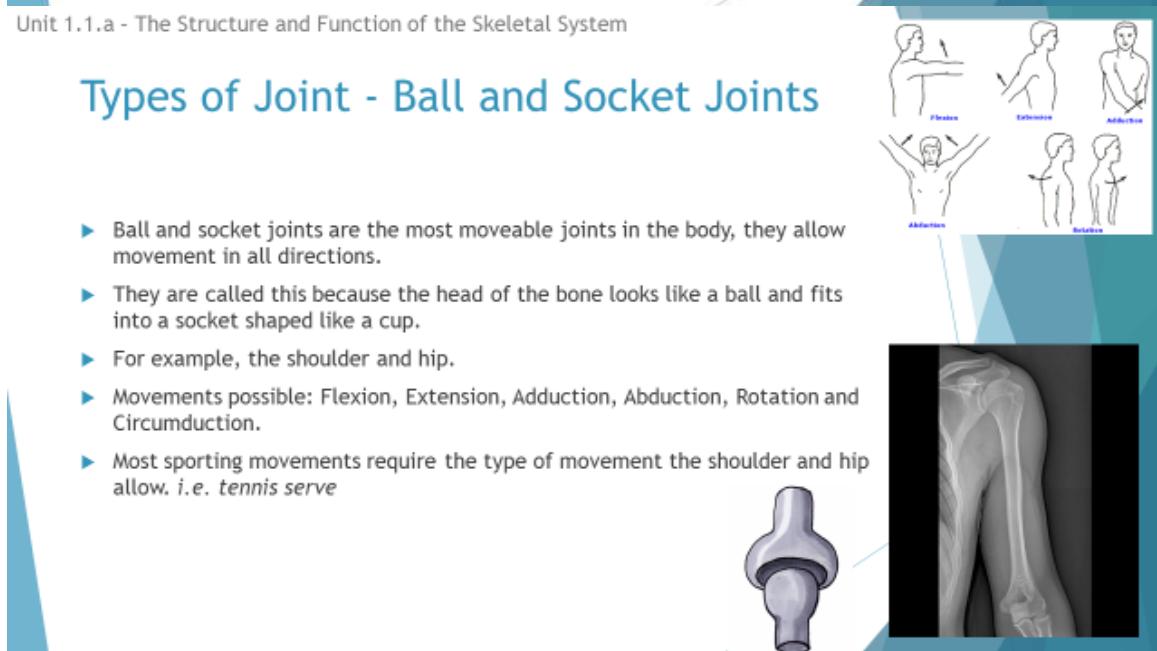
Types of Joint - Hinge Joints

- ▶ Hinge joints work like a hinge on a door and can bend to allow movement in two directions only.
- ▶ For example, the knee, elbow and the ankle.
- ▶ Movements possible at hinge joints: Flexion and Extension.
- ▶ These joints are extremely powerful and by working with surrounding muscles they can produce power and speed *i.e.* Knee drive during a 100m sprint



Types of Joint - Ball and Socket Joints

- ▶ Ball and socket joints are the most moveable joints in the body, they allow movement in all directions.
- ▶ They are called this because the head of the bone looks like a ball and fits into a socket shaped like a cup.
- ▶ For example, the shoulder and hip.
- ▶ Movements possible: Flexion, Extension, Adduction, Abduction, Rotation and Circumduction.
- ▶ Most sporting movements require the type of movement the shoulder and hip allow. *i.e.* tennis serve



Functions of the Skeletal System - *Support*

- ▶ The skeleton gives the body support, enabling us to stand.
- ▶ The bones of the body are held together by ligaments.
- ▶ The skeleton provides a framework for the muscles, which are attached to the bones by tendons.



Functions of the Skeletal System - *Protection*

- ▶ Some of our body parts, such as the brain, are very delicate and need protection.
- ▶ Bones can protect body parts from impacts and injuries.
- ▶ The cranium protects...
- ▶ The rib cage protects...



Functions of the Skeletal System - *Movement*

- ▶ Muscles are attached firmly to bones forming levers to allow for sporting movements.
- ▶ When the muscles contract they pull on the bone, creating movement.



Functions of the Skeletal System - *Posture*

- ▶ The skeleton acts as a framework.
- ▶ Muscles are firmly attached to bones forming our body shape, this holds us upright.



Functions of the Skeletal System - *Mineral Storage*

- ▶ The minerals in your bones serve two main functions.
- ▶ Minerals transform spongy bone matrix into a rigid structure and in turn increase density and strength.
- ▶ Your bones also function as a mineral storage depot, releasing dissolved calcium, phosphorus and magnesium into your bloodstream if needed.



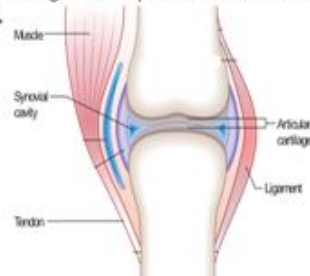
Functions of the Skeletal System - *Blood Cell Production*

- ▶ The ends of long bones and some other bones including the ribs, humerus, femur and even vertebrae bones, contain red bone marrow.
- ▶ This is where the red blood cells that carry oxygen are produced.



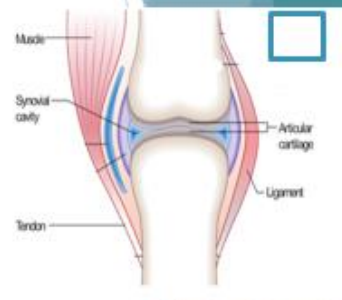
The Structure of a Synovial Joint - Ligaments

- ▶ These are found between bones and attach bone to bone.
- ▶ They are bands of connective tissue that are very tough and resilient.
- ▶ Some ligaments lie within the synovial capsule, others are outside the capsule.
- ▶ **Function:** The ligaments prevent movements that are extreme and help stop dislocation.



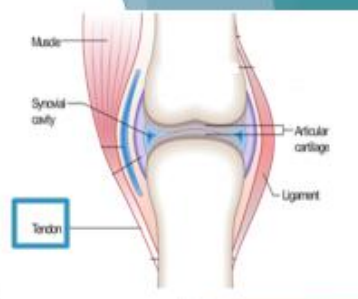
The Structure of a Synovial Joint - Cartilage

- ▶ Cartilage is a soft connective tissue.
- ▶ Cartilage may be torn with a forceful knee movement. For example, a footballer dribbling around a defender may twist their knee while their foot is still in the ground.
- ▶ Sometimes a tear can develop from wear and tear or repeated injuries.
- ▶ **Function:** The cartilage reduces friction and acts as a shock absorber for the joint.



The Structure of a Synovial Joint - Tendons

- ▶ Muscles are attached to bones via tendons.
- ▶ Tendons are strong and can be a little flexible.
- ▶ **Function:** As well as attaching muscles and bones, the tendons also help to transmit the power needed to move bones. When a muscle shortens, it pulls on the tendons; this pulls on the bones to which the tendons are attached and causes movement.



Extension

- ▶ This is straightening or extending a limb.
- ▶ When extension occurs the angle at a joint is increased.
- ▶ Example: The arm can be extended at the elbow.



Different types of synovial joints allow different kinds of movement. There are 6 basic types of movement that can occur at such joints.

Flexion

- ▶ This is bending or flexing a limb.
- ▶ When flexion occurs the angle at a joint is decreased.
- ▶ Example: The leg can be flexed at the knee.



Different types of synovial joints allow different kinds of movement. There are 6 basic types of movement that can occur at such joints.

Abduction

- ▶ This is sideways movement of a limb away from the midline of the body.
- ▶ This happens during the first movement of a star jump with arms and legs.
- ▶ Example: The leg can be moved away from the centre of the body at the hip.



Different types of synovial joints allow different kinds of movement. There are 6 basic types of movement that can occur at such joints.

Adduction

- ▶ This is the opposite movement to abduction where the bone or limb moves towards the body.
- ▶ This happens during the return of the movement of the arms and legs in the star jump.
- ▶ Example: The arm can be moved towards the centre of the body at the shoulder.



Different types of synovial joints allow different kinds of movement. There are 6 basic types of movement that can occur at such joints.

Rotation and Circumduction

- ▶ Rotation is where the bone turns about its longitudinal axis within the joint.
- ▶ Example: A tennis player uses rotation at the shoulder joint during the backswing of a serve.
- ▶ Circumduction is a continuous circular movement of a limb around a joint.
- ▶ It is a combination of abduction, adduction, extension or flexion and rotation.
- ▶ Example: A swimmer during the front crawl arm action will take their arm out and round and back into the water, showing circumduction at the shoulder joint.



Different types of synovial joints allow different kinds of movement. There are 6 basic types of movement that can occur at such joints.