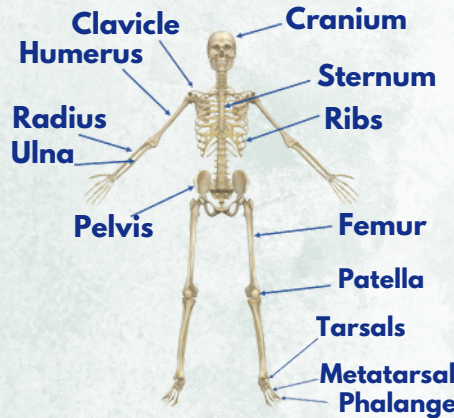


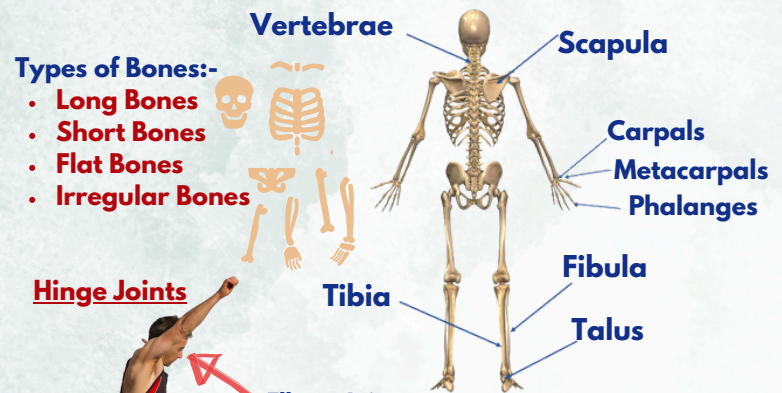
The PE Classroom

Edexcel GCSE PE: Systems of the Body

The Skeletal System



- Functions of the skeletal system:-
- Movement
 - Support
 - Blood Cell Production
 - Muscle attachment
 - Protection of vital organs
 - Mineral storage (e.g. Calcium/Phosphorus)

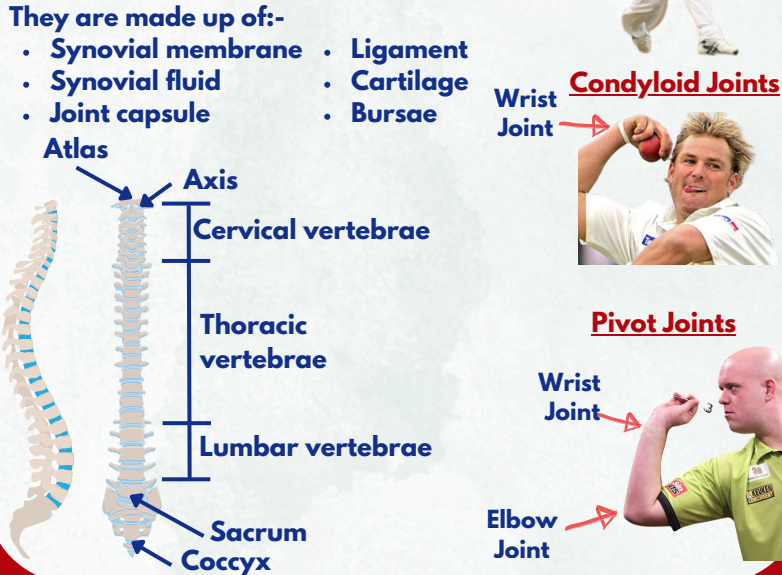


Hinge Joints
Elbow Joint, Ankle Joint, Knee Joint

Ball & Socket Joints
Shoulder Joint, Hip Joint

Condyloid Joints
Wrist Joint

Pivot Joints
Wrist Joint, Elbow Joint

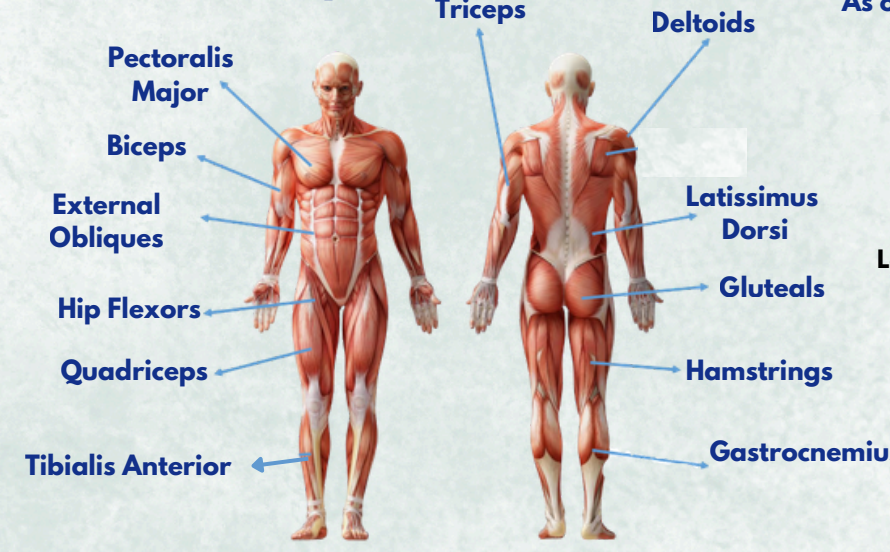


- Types of Bones:-
- Long Bones
 - Short Bones
 - Flat Bones
 - Irregular Bones
- They are made up of:-
- Synovial membrane
 - Synovial fluid
 - Joint capsule
 - Ligament
 - Cartilage
 - Bursae

Joint Actions

- Flexion** - narrowing of the angle at a joint
- Extension** - widening of the angle at a joint
- Abduction** - movement away from the body midline
- Adduction** - movement towards the body midline
- Plantarflexion** - widening of the angle at the ankle joint
- Dorsiflexion** - narrowing of the angle at the ankle joint
- Rotation** - the action of rotating around an axis
- Circumduction** - action of rotating 360 degrees around an axis

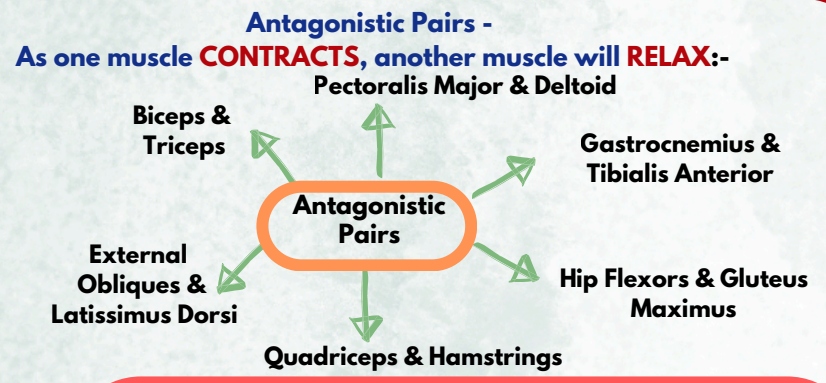
The Muscular System



Involuntary Muscles
A muscle which you cannot control

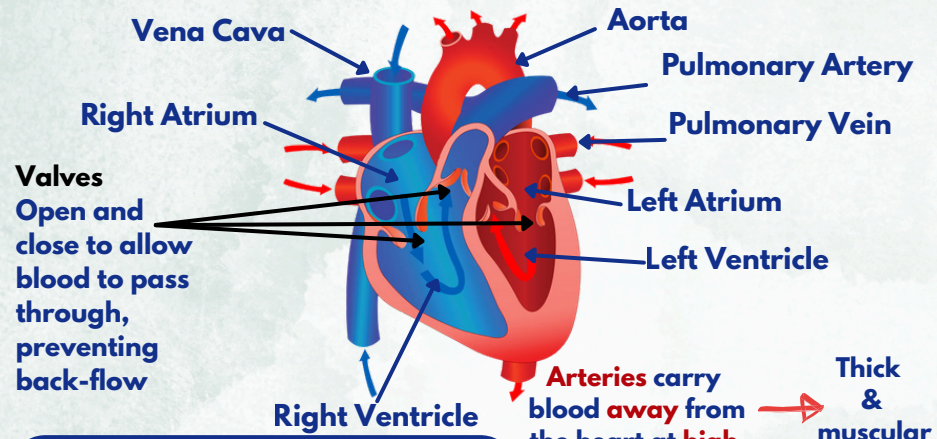
Cardiac Muscles
A muscle found in the wall of the heart

Voluntary Muscles
A muscle which you can control



Muscle Fibres		
Type I	Type IIA	Type IIX
Slow Twitch	Fast Twitch	Fast Twitch
Slow Contractions	Fast Contractions	Very Fast Contractions
Aerobic Activity	Fatigue relatively quickly	Fatigue very quickly
e.g. Marathon	e.g. 800m	e.g. 100m

The Cardiovascular System



Systolic blood pressure; pressure as the heart contracts → 130/
Diastolic blood pressure; pressure as the heart relaxes → 85

Arteries carry blood away from the heart at high pressure → Thick & muscular walls

Veins carry blood towards the heart at low pressure → Thin walls

Vasodilation
Blood vessels become wider, increasing blood flow to the working/active muscles

Vasoconstriction
Blood vessels become narrower, reducing blood flow to less active/inactive areas.

Capillaries connect arteries and veins, allowing diffusion of gases → Very thin walls

Heart Rate (HR) No. beats per minute

Stroke Volume (SV) Amount of blood ejected each beat

Cardiac Output (CO) Amount of blood ejected per minute (HR * SV)

Anticipatory rise Increase in HR just before physical activity

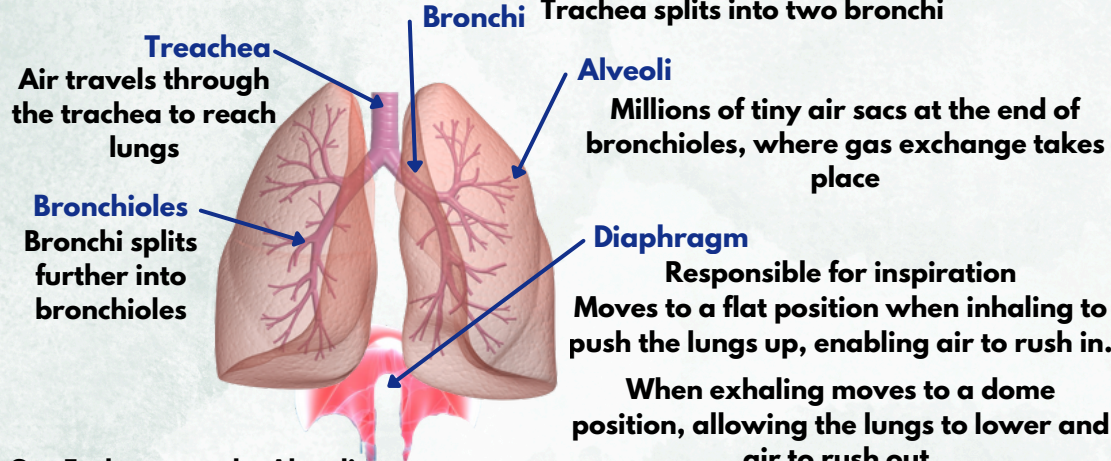
Red Blood Cells
Circulation of oxygen around the body

Platelets
Form blood clots following injury

White Blood Cells
Destroy pathogens

Plasma
90% water but also contains salts, enzymes, antibodies and other proteins

The Respiratory System



Gas Exchange at the Alveoli

- The oxygen in the alveoli diffuses into the bloodstream and is transported to the working muscles
- The CO2 from the bloodstream diffuses into the alveoli in order to be exhaled by the lungs

	Inhaled Air	Exhaled Air
Oxygen	21%	16%
Carbon Dioxide	0.04%	4%
Nitrogen (+ other gases)	79%	79%

