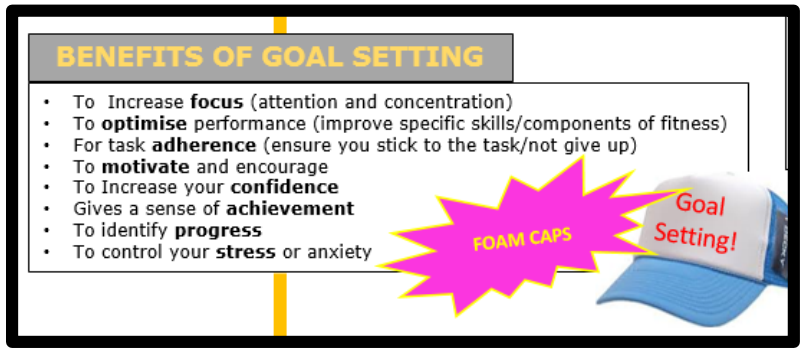
Carshalton Boys Sports College

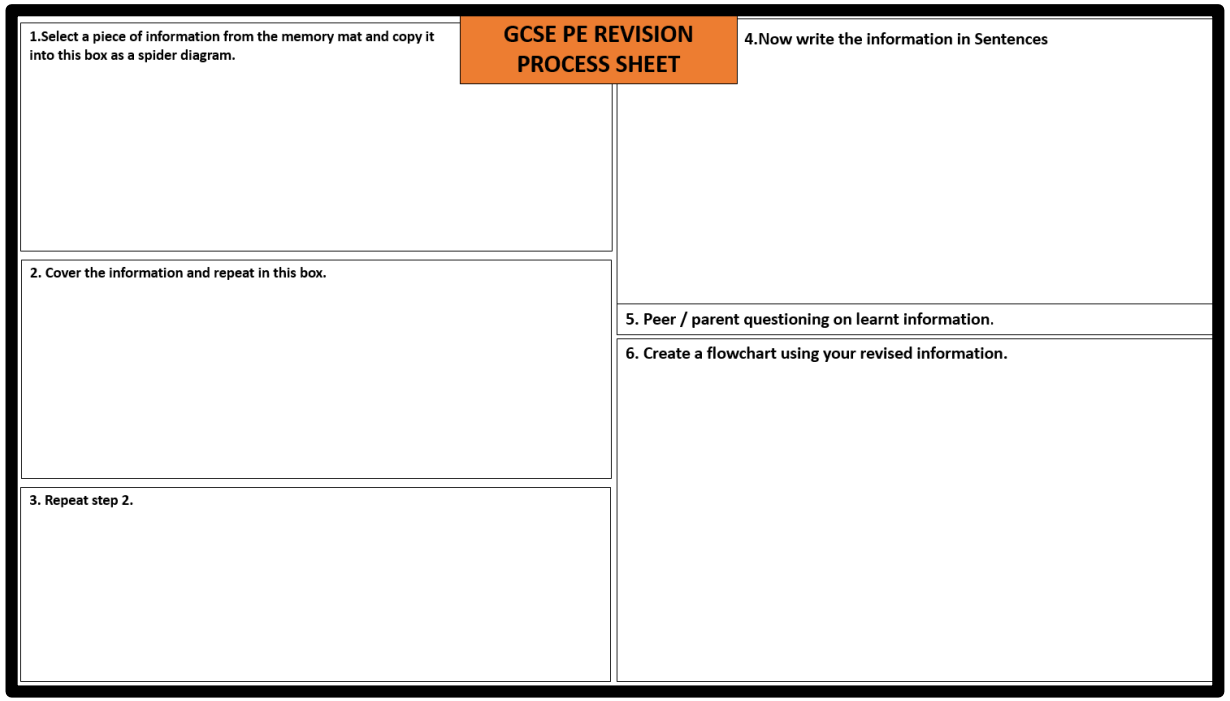
PHYSICAL EDUCATION GCSE KNOWLEDGE BOOK

Contains all Memory Mats from Unit 1 and Unit 2

REVISION TECHNIQUE

- **In order to learn something off by heart use the following process. You can do this in any order, (what ever works best for you) as long as you keep changing the format of the information you want to learn.**
- **Step 1:** Start with a small chunk of the information you need to learn and put it into bullet points. Acronyms can help with memory, revision process sheets can help provide a structure…





Step 2: Now put the information in a spider diagram
Step 3: Try speaking it out aloud
Step 4: Get a classmate, parent or sibling to question you.
Step 5: Write it out in paragraph format.

Repeat the process with the next chunk of information. Finally, try to write all the chunks of information you have learnt in one go.

UNIT 1

- Applied anatomy and physiology
- Physical training

1.1.a Skeletal System

Function of SS

1. MOVEMENT: this is achieved at a JOINT. Muscles attach to the skeleton through TENDONS. The 2 systems work together to cause movement
2. SUPPORT/POSTURE: provides SHAPE & FRAMEWORK for the body which supports it through a variety of movements or positions.
3. PROTECTION: Protects vital organs e.g the CRANIUM (skull) which protects the BRAIN, the RIBS protect the HEART, LUNGS & LIVER.
4. STORAGE OF MINERALS: The bones are used to STORE MINERALS through calcium.
5. BLOOD CELL PRODUCTION: Red blood cells CARRY OXYGEN around the body. These blood cells are produced in the bone marrow of some bones.

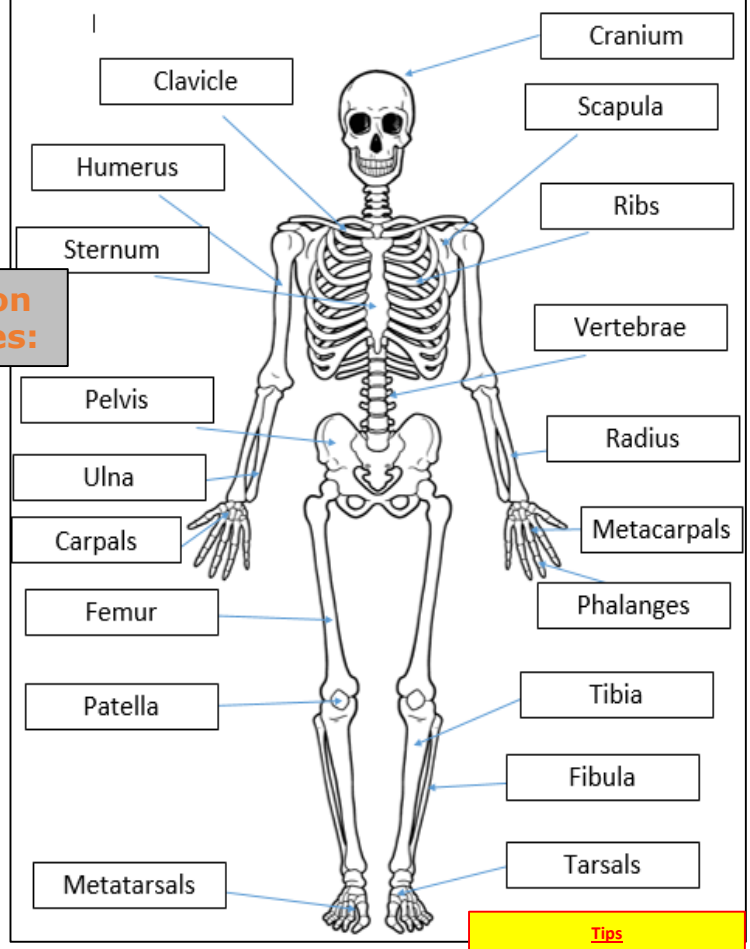
Roles of CARTILAGE, LIGAMENTS & TENDONS

CARTLIAGE – soft, connective , flexible tissue which can be found at the END OF BONES. Cartilage helps to REDUCE FRICTION and acts as a SHOCK ABSORBER.

LIGAMENTS – Tough, resilient connective tissue attaching BONE TO BONE at a joint. Ligaments KEEP JOINTS STABLE during movement and prevent DISLOCATION.

TENDONS – Strong, flexible tissue attaching BONE TO MUSCLE. When we contract a muscle it pulls on the tendon which pulls on the bone helping to FACILITATE MOVEMENT.

Location of bones:



Tips
1. Tarsals = Toes
2. Tibia = on Top of Fibula
3. Ulna = Underneath radius
4. Humerus = funny bone
5. Scapula = Shoulder bone
6. Clavicle = Collar bone

SYNOVIAL JOINTS

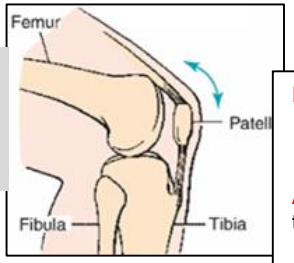
FREELY MOVEABLE JOINTS (Synovial joints) are joints where 2 or more bones **ARTICULATE** (meet).

ARTICULATING BONES are BONES that MOVE WITHIN A JOINT For example the shoulder, knee and elbow are all joints.

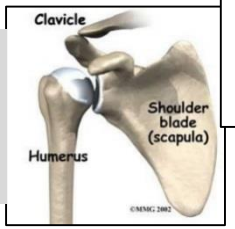
A) HINGE Joints; the KNEE and the ELBOW are both HINGE joints. They can perform EXTENSION & FLEXION.

B) BALL & SOCKET Joints: EG: The SHOULDER. This can perform EXTENSION, FLEXION, ABDUCTION, ADDUCTION, ROTATION

Hinge



Ball & Socket



Joint Movements

Rotation

the movement around a limbs long AXIS (screwdriver) It can happen at the SHOULDER

Abduction

the movement of a LIMB (arm or leg) AWAY FROM the MIDLINE of the body.

ABDUCTION at the SHOULDER caused when the DELTOID CONTRACTS

Adduction

the movement of a LIMB (arm or leg) TOWARDS the MIDLINE of the body.

ADDUCTION at the HIP caused when by bringing the legs back to the midline of the body

Flexion

the DECREASE in the ANGLE of a joint.

This is FLEXION at the R. KNEE caused when the HAMSTRING CONTRACTS

Extension

the INCREASE in the ANGLE of a joint.

This is EXTENSION at the R. KNEE caused when the QUADRICEPT CONTRACTS

Circumduction

A COMBINATION of MOVEMENTS allowing CONTINUOUS CIRCULAR MOVEMENTS of a LIMB

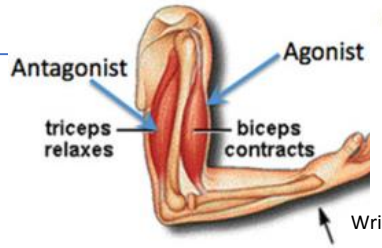
This is CIRCUMDUCTION at the R. SHOULDER caused when the QUADRICEPT CONTRACTS

1.1.b Muscular System

Skeletal/voluntary muscles are muscles which connect to the skeleton via tendons allowing the skeleton to move at joints.

The role of muscles is to contract or relax to cause movement at a joint. Muscles work as antagonistic pairs to move a joint.

AGONIST - One muscle is under tension it contracts and shortens (agonist).
ANTAGONIST - The other muscle of the pair relaxes and lengthens (antagonist).



The 'fixator' muscle during movement is the muscle(s) that stabilises the origin of the agonist.

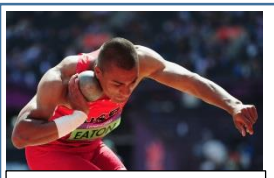
It operates so that the agonist muscle can pull against the bone without it moving to achieve an effective contraction.

Most fixator muscles surround the hip and shoulder bones.

The FIXATOR

The role of Muscles; ANTAGONISTIC PAIRS

Practical examples; Agonist, Antagonist, and Fixator

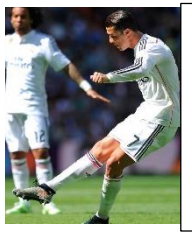


Shot Putt Preparation
Agonist: Biceps
Antagonist: Triceps
Fixator: Deltoid

Shot Putt Release
Agonist: Triceps
Antagonist: Biceps
Fixator: Deltoid

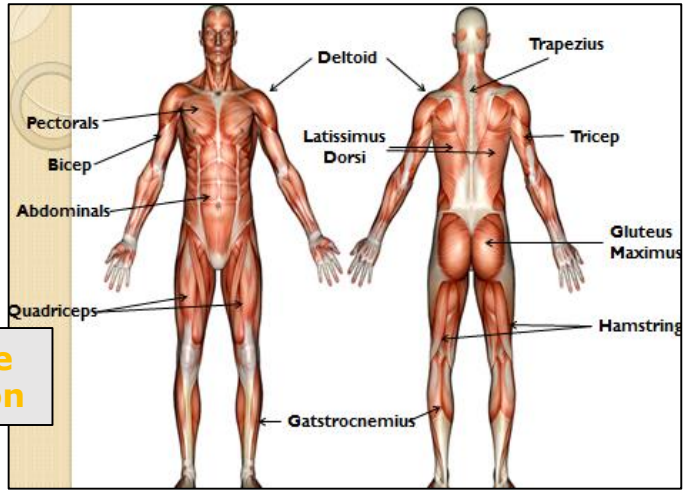
Bicep Curl Phase
Agonist: Biceps
Antagonist: Triceps
Fixator: Deltoid

Kicking preparation
Agonist: Hamstring
Antagonist: Quadriceps
Fixator: Gluteal



Kicking execution
Agonist: quadriceps
Antagonist: Hamstring
Fixator: Gluteal

Muscle location



Muscles in action

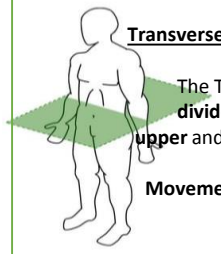
Joint	Muscle group	Movement	Example
Knee	Quadriceps	Extension	The quadriceps extend the knee during the execution phase of kicking a football.
	Hamstrings	Flexion	The hamstrings flex the knee in the preparation phase of a football.
Vertebral column	Abdominals	Flexion (bending forwards)	The abdominals flex the vertebral column and hip joint in the upward phase of sit up.
Hip	Gluteals	Extension Abduction Rotation	The gluteals: Extend the hip as a ballet dancer performs an arabesque. Abduct the hip in the outward phase of a star jump. Rotate the hip as a ballet dancer moves into first position.
Ankle	Gastrocnemius	Plantar flexion (pointing the toes)	The gastrocnemius plantar flexes a ballet dancer's ankle as they go en pointe.

Joint	Muscle group	Movement	Example
Elbow	Biceps	Flexion	The biceps flexes the elbow in the upward phase of a biceps curl.
	Triceps	Extension	The triceps extends the elbow to shoot the ball in netball.
Shoulder	Deltoids	Flexion Extension Abduction	The deltoids: • Flex the shoulder of a tennis as they throw the ball up to serve. • Extend the shoulder joint of a rounder's player as they draw the arm back to bowl. • Abduct the shoulder joint in the outward phase of a star jump.
	Latissimus dorsi	Adduction	The latissimus dorsi abducts the shoulder in the inward phase of a star jump.
	Pectorals	Adduction in a horizontal plane (arm moves across the chest).	The pectorals horizontally adduct the arm across the chest during the release of a discus.
	Trapezius	Abduction of the shoulder in a horizontal plane (arm moves out from the chest).	The trapezius horizontally abducts the shoulder to bring the arm back in the preparation phase of the discus.

1.1.C Movement Analysis

Planes of movement

Transverse Plane

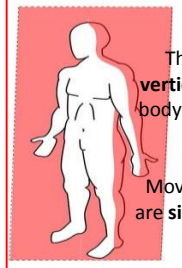


The Transverse Plane **divides** the body into **upper** and **lower** sections.

Movements in this plane are **rotation**.

E.g swinging a golf club or baseball bat.

Frontal Plane

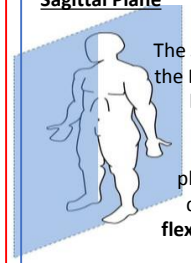


The Frontal Plane runs **vertically** and **divides** the body in sections between **front** and **back.**

Movements in this plane are **sideways movements** of **abduction** and **adduction.**

E.g Jumping Jacks or a breaststroke legs during swimming.

Sagittal Plane



The Sagittal Plane splits the Body **vertically** into **left** and **right** sides.

Movements in this plane are the up and down movement of **flexion** and **extension.**

E.g the leg action in running takes place in a sagittal plane as does the arm action when rowing.

Tip

Link

Tip

Link

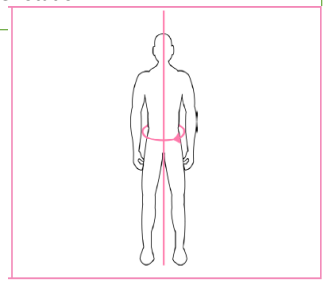
Tip

Link

Longitudinal axis - passes vertically from the top to the bottom of your body.

When a gymnast performs a three hundred and sixty degree turn, they're rotating around the longitudinal axis.

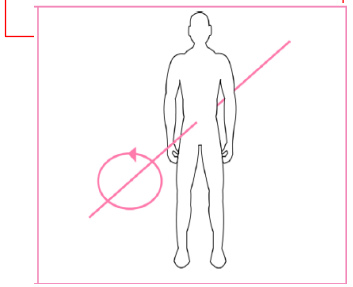
Common movements about this axis are rotation.



Frontal axis - runs horizontally from the front to back of your body.

When a gymnast performs a cartwheel they have rotated around the frontal axis.

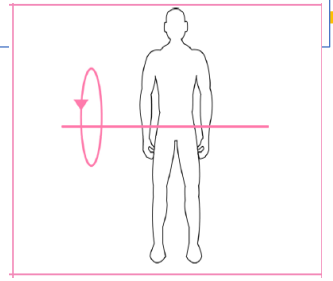
Common movements about this axis adduction and abduction.



Transverse axis - passes horizontally from left to right.

A somersault is a rotation through the transverse axis.

Common movements about this axis are flexion and extension



Axis of rotation

Axes are imaginary straight lines that rotate the body. There are 3 axes; Transverse, longitudinal and frontal.

Every joint movement is carried out in a plane about an axis.

Link the Planes of Movement to the Axis of Rotation

Axis	Activity Example	Movement	Plane
Transverse (Left to Right)	• Somersault • Bicep curl	Flexion/Extension	Sagittal
Longitudinal (top to bottom)	• Pirouette in dance • 360 degree turn in snowboarding	Rotation	Transverse
Frontal (Front to Back)	• Cartwheel • Lateral shoulder raise	Abduction/Adduction	Frontal

Describe the key components of lever systems

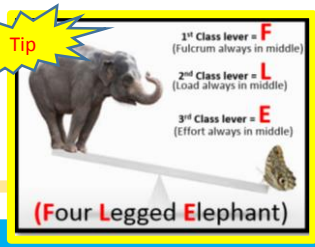
Lever arms: a rigid structure e.g a bone.
Fulcrum (axis/joint): the pivot that is the point of movement e.g a joint
Load (weight/resistance): the body's own weight/piece of sporting equipment
Effort (force/muscle action): muscles used to move the load

Describe the purpose of levers

Bones and **Muscles** work together to form **levers**. Levers are used to make a small amount of force into a much **bigger force.**

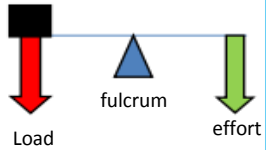
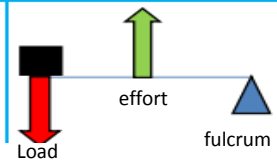
Levers help us to…
1. Use our **muscles** to **overcome** a **heavy weight**
2. **Increase** the **speed** in which we **move**

Tip



(Four Legged Elephant)

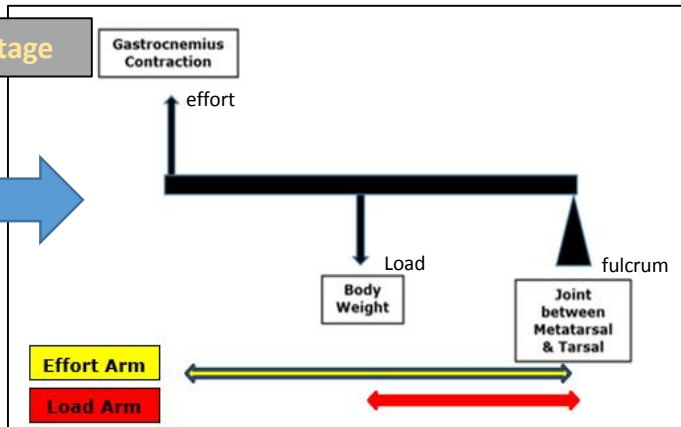
Explain the 3 types of lever systems

Lever Description	Class of Lever (1st, 2nd or 3rd)	Diagram of Lever	Practical Example
The fulcrum is located between the **load** and **effort**.	**F**our 1st	 Load, fulcrum, effort	A player nodding their head in agreement with the official. Fulcrum = Joint between head and first vertebra Load = Weight of the head (cranium) and ball Effort = Muscles attaching to cranium eg trapezius
The load is located between the **effort** and **fulcrum**.	**L**egged 2nd	 effort, Load, fulcrum	A diver standing on tiptoes before they dive into the swimming pool. Fulcrum = Metatarsophalangeal Joint Load = Weight of the body Effort = Gastrocnemius and soleus muscles through the Achilles tendon.
The effort is located between the **load** and **fulcrum**.	**E**lephant 3rd	 Load, effort, fulcrum	The elbow joint when flexing to lift a dumbbell. Fulcrum = Joint between humerus and radius Load = Weight of forearm, wrist, hand and dumbell Effort = Biceps muscle when flexing

Mechanical Advantage

A *second class* lever allows a large load to be moved with a small amount of effort.

A **mechanical advantage** allows a **lever system** to **move** a **large load** (L) with **minimum effort** (E). This **occurs in 2nd Class Levers** because the **Effort Arm is greater than the Load Arm**.



1.1.d Cardiovascular System

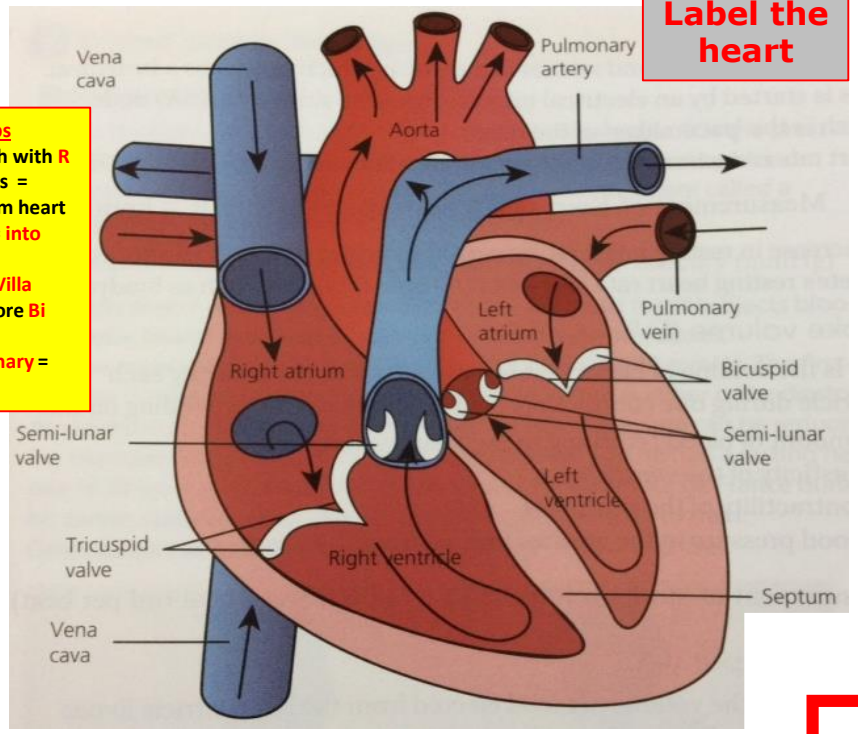
'Cardio' = **heart** 'Vascular' = **blood vessels**.

Role of red blood cells

The primary function of **red blood cells** is to **transport oxygen** around the **body** and to deliver **carbon dioxide** to the **lungs**.

Red blood cells contain **haemoglobin** an iron rich protein. The **more concentrated** the haemoglobin the **more oxygen** can be carried.

Label the heart



Tips
1. **L switch with R**
2. **Arteries = Away from heart**
3. **Veins = into heart**
4. **Aston Villa**
5. **Tri before Bi (valves)**
6. **Pulmonary = Lungs**

The double circulatory system

The Double Circulatory system **connects** the **heart** to the **lungs** and then the heart to other **organs** in the body. The Double Circulatory system involves **pulmonary circulation** and **systemic circulation**.

pulmonary system

The **pulmonary system** involves the **transportation** of **blood** between the **lungs** and the **heart**.

Step 1: The **pulmonary artery** takes **deoxygenated blood** from the **right ventricle** to the **lungs**.

Step 2: In the lungs it becomes **oxygenated** and **off-loads carbon dioxide**.

Step 3: The **pulmonary vein** then takes the **oxygenated blood** back to the **left atrium** of the heart.

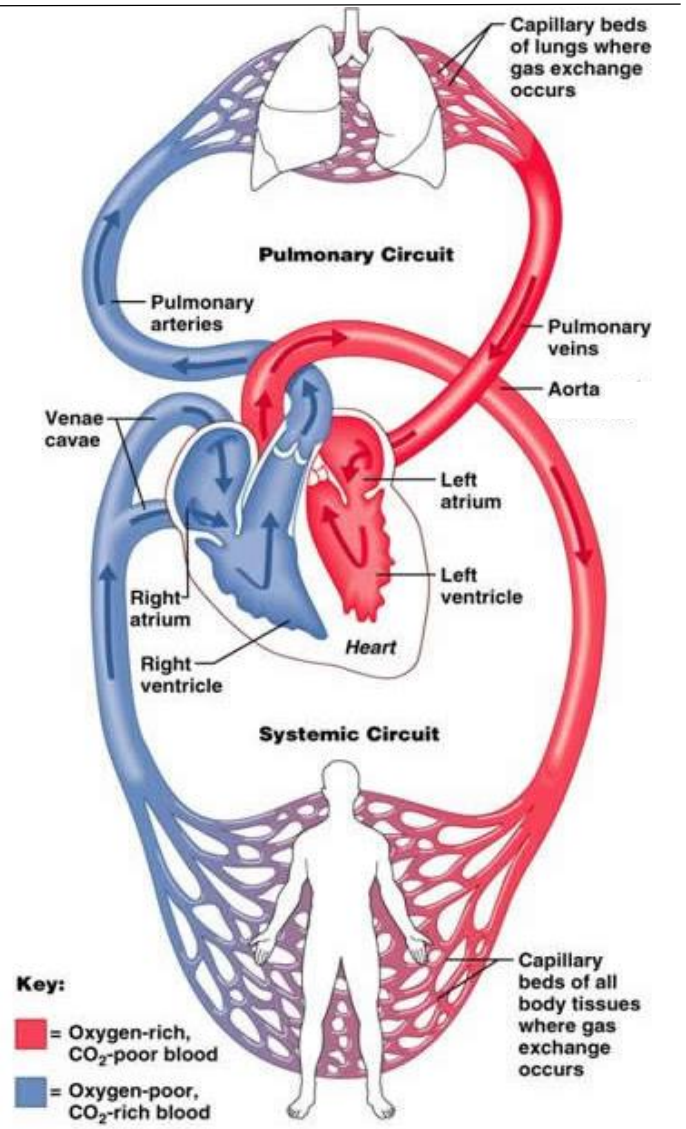
systemic system

The **systemic system** involves the **transportation** of **blood** between the **heart** and the various parts of the **body** (lungs not included).

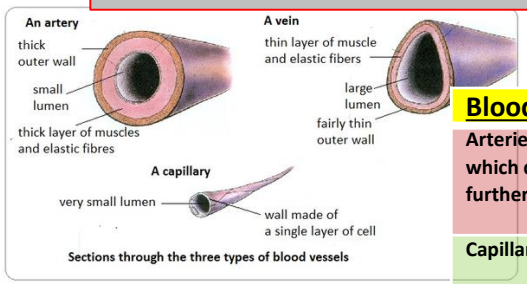
Step 1: **Oxygenated blood** is pumped from the **left ventricle** of the heart into the **AORTA** (biggest artery) where it is **transported** to the tissues of the **body.**

Step 2: At the bodies tissues **oxygen diffuses** through **capillaries** to the muscles and waste products **(CO2) diffuse** the back.

Step 3: **Blood** now high in **carbon dioxide travels back to the right atrium of** the **heart** via the **vena cava**.



Types of blood vessel



Blood vessels	Structure	Function
Arteries: The main artery is the aorta which divides into smaller arteries and further into arterioles.	Smooth muscle layer which vasodilates (widens) and vasoconstricts (narrows) to control blood flow.	Carry oxygenated blood at high pressure from the heart to the muscles and organs to deliver oxygen and nutrients to the tissues.
Capillaries	Single-cell-thick wall to allow for gaseous exchange.	Gaseous exchange through a dense network of capillaries around muscles and alveoli.
Veins: Venules connect to form smaller veins and further to form the main vein, the vena cava.	Thin layer of smooth muscles and pocket valves to prevent the backflow of blood.	Carry deoxygenated blood at low pressure back to the heart against gravity.

Define heart rate

Heart rate (**HR**) is the amount of times the **heart beats** in **one minute** (HR= bpm).

Define stroke volume

Stroke volume (**SV**) is the amount of **blood pumped** out of the heart with **each contraction** (each beat).

Define cardiac output

Cardiac output is the amount of **blood pumped** out of the heart in **one minute**.

SV x HR = Cardiac Output

1.1.d Respiratory System

The **respiratory system** with the **cardiovascular system** to **provide oxygen** to the **working muscles**. This is crucial in sport and exercise.

The pathway of air through the respiratory system

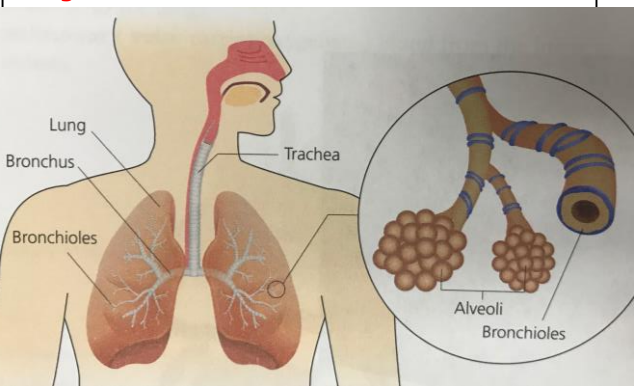
The air enters the body through the **MOUTH AND NOSE** where the **air** is **warmed** and **moistened** and **filtered.**

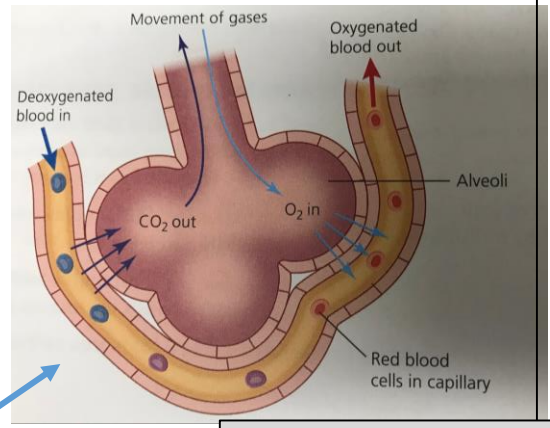
Air enters through the **TRACHEA** otherwise known as the **windpipe**.

The **trachea divides** into **two bronchi**. Air passes through the right bronchi into the **right lung** whilst the left bronchi leads to the **left lung**.

The bronchi divide up into smaller **BRONCHIOLES**. Air passes through these en route to the **Alveoli.**

Alveoli – Alveoli are **tiny, thin air-filled sacs** responsible for **gaseous exchange** between the **lungs** and the **blood**.





Within the alveoli an **exchange of gases** takes place between the **gases** inside the **alveoli** and the **gases** inside the **blood**.

1. As the **blood** moves **to** the **lungs** it carries a **high concentration** of **carbon dioxide** which has been **produced** by the cells in the **body**. It has a **low concentration** of **oxygen**.

2. The **fresh air** in the **alveoli** has a **high concentration** of **oxygen** and a **low concentration** of **carbon dioxide.**

3. Diffusion (the movement of molecules from an area of high concentration to an area of low concentration) takes place and the **gases switch places**.

4. Oxygen diffuses into the **blood** and **combines** with '**haemoglobin**' found in red blood cells to form '**oxyhaemoglobin**', where it is **transported** to the **working muscles**. **Carbon dioxide diffuses from** the **blood** and exits the body via **expiration.**

Explain how the alveoli aid the process of gaseous exchange

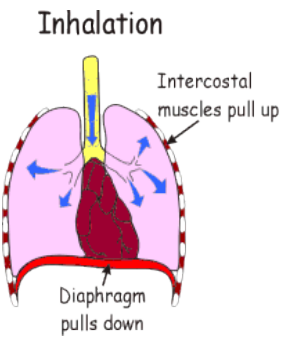
Exercise Classification

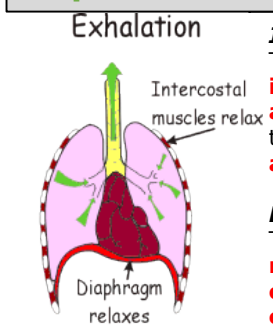
Exercise	Type
400-m sprint	Anaerobic
10-km run	Aerobic
Track cycling (1 km)	Anaerobic
Road cycling (40 km)	Aerobic
100-m freestyle swim	Anaerobic
1,500-m freestyle swim	Aerobic

Aerobic vs Anaerobic Exercise

	Aerobic	Anaerobic
Description	Activity that raises heart and breathing rate which can be sustained overtime	Activity that pushes the performer to maximum and can lead to the performer being out of breath and fatigued
Energy production	With oxygen	Without oxygen
Intensity	Low to moderate	High
Duration	Long	Short
Example	Jogging	Sprinting
By-product	CO2 and Water which can both easily be removed	Lactic Acid which leads to muscular pain and fatigue

Explain the role of respiratory muscles in breathing





Inspiration (breathing in)
The **intercostal muscles** and the **diaphragm contract**. The **intercostal muscles** which are attached to the **ribs**, move **upwards and outwards** and the **diaphragm contracts downwards** meaning the area in the **chest cavity** is **increased** allowing the **lungs** to fill with **air**.

Expiration (breathing out)
The respiratory muscles (**intercostal muscles** and the **diaphragm**) **relax**. The **ribs** are **lowered** and the **diaphragm** moves back up to its **original position**. The **chest cavity** becomes **smaller** as **air** is **expired**.

Define Breathing Rate, Tidal Volume and Minute Ventilation

Breathing rate = The frequency of breathing measured in **breaths per minute**.

Tidal volume = The **volume** of **air** that is **inspired** or **expired** with **every breath**.

Minute ventilation = The **volume** of **air** that is **inspired** or **expired** with **every minute**.

Minute ventilation = tidal volume x breaths per minute.

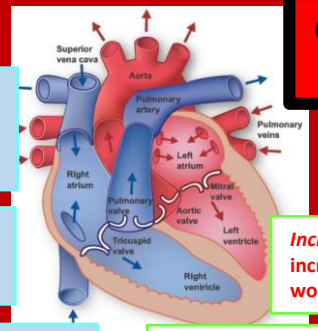
1.1.e Effects of Exercise on the Body Systems

Long term effects (blue boxes) refers to adaptations from exercising over a long period of time e.g 6 week training programme.

Short term effects (white boxes) refers to adaptations from immediate exercise e.g a PE lesson

Cardiovascular system

CV	RESP
HR	BR
SV	TV
CO	MV



LONG TERMS EFFECTS

Capillarisation – new **capillaries develop** and existing capillaries become **more efficient** meaning **more blood flow** and **oxygen to muscles**.

cardiac hypertrophy- Endurance training over a **long period** of time will **increase** the **size** and **strength** of the **heart**.

Quicker rate of recovery – this is the amount of time it takes us to **return** to our **resting pulse rate**. **Long term exercise** leads to more effective **uptake** of **oxygen** and more effective **removal of carbon dioxide** meaning a quicker recovery rate

Increased stroke volume at rest – stroke volume refers to the amount of **blood pumped** from the **heart** with **every beat**. Due to hypertrophy of the heart, **stroke volume increases** as a result of **long term exercise**.

Increased cardiac output - cardiac output refers to the amount of **blood ejected** from the **heart each minute**. Due to hypertrophy of the heart, **cardiac output** increases during **high intensity activity** as a result of **long term exercise**.

Reduction in resting heart rate – as a result of **long term exercise** the amount of **beats per minute (bpm)** will be **reduced**, this is due to hypertrophy of the heart.

SHORT TERM EFFECTS

Increased heart rate – when we exercise our **heart rate increases** to ensure that there is enough supply of **oxygen** to the **working muscles** and **carbon dioxide** is **removed** from the body.

Increased stroke volume – The amount of **blood** that is **pumped** out of the **heart** with **each contraction** (beat) **increases** when we **exercise.**

Increased cardiac output – The amount of **blood** that is **ejected** from the **left ventricle** in **one minute** is **increased** when we **exercise**. (**SV x HR = CO**)

Increased blood flow – to the working muscles

Increased blood pressure– due to the increase in demand for oxygen

Vascular shunts – As we begin to exercise **blood** is **distributed** to the **working muscles** and **less** to the non-essential **organs** e.g blood moves to the legs and arms when we are running (vasodilation of arteries) and avoids the stomach (vasoconstriction of arteries)where it may have previously been to aid digestion of food.

- **Vasoconstriction** is where arteries **decrease** their **diameter** to allow less blood flow to a specific body part.
- **Vasodilation** is where arteries **increase** their **diameter** to allow more blood to flow to a specific body part.

Respiratory system

SHORT TERM EFFECTS

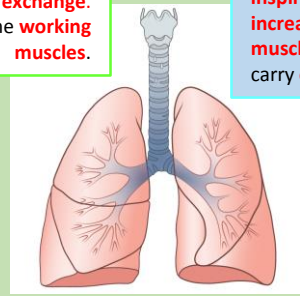
Increased respiratory rate (breathing rate) – the amount of breaths taken per minute. When we exercise we begin to **breathe faster** due to the **working muscles demand** for more **oxygen.**

Increased tidal volume - Tidal volume is the **amount** of **air** either **inspired or expired** with **each breath**, this **increases** when we exercise.

Increased minute ventilation – This is the **volume** of **air** that is **inspired or expired** in **one minute**, this **increases** when we exercise.

Minute ventilation = respiratory rate x tidal volume.

Increased oxygen to the working muscles – When we exercise our muscles require **oxygen** for **energy**. We breathe oxygen in to our lungs where it is passed into our arteries via **gaseous exchange**. When the heart beats this **fresh oxygen** is delivered to the **working muscles**.



LONG TERMS EFFECTS

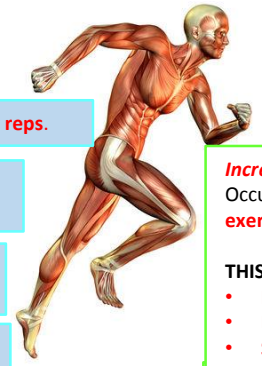
Increased aerobic capacity – The ability to **sustain energy** aerobically is increased; in other words a **better cardiovascular endurance**.

Increased strength of respiratory muscles – An increase in strength of the **intercostal muscles** allows **more air** to be **breathed in and out.**

Increased tidal volume - the amount of air **inspired** and **expired** with **each breath** will **increase** due to **stronger intercostal muscles** and an **increased capacity** of the **lungs** to carry **oxygen**.

Increased minute ventilation - the amount of air **inspired** and **expired** with **each minute** will **increase** due to due to **stronger intercostal muscles** and an **increased capacity** of the **lungs** to carry **oxygen**.

Muscular system



LONG TERMS EFFECTS

Increased tendon strength –This provides **more support** for the **joint.**

Increased muscular strength– **D**ue to a weight training programme that focuses on using a **heavy weight** and **sets** with **low reps**.

Hypertrophy of muscles – hypertrophy refers to an **increase** in **size** of a **muscle** or organ. When we exercise we create **tiny tears** in our **muscles**; **rest** and a **high protein diet** help to repair these tears and they **grow back bigger** and **stronger**.

Increased muscular endurance/resistance to fatigue –Endurance training such as swimming will **increase** the muscles ability to **carry oxygen** meaning the athlete will become **aerobically fitter and tire slower**

Increased speed of muscle contractions – Muscles will contract quicker making you move quicker.

Increased tolerance to lactic acid AND Increased rate of removal of lactic acid

SHORT TERM EFFECTS

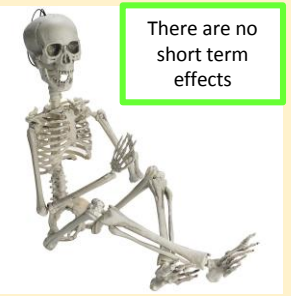
Increase in muscle temperature - **muscles** begin to **warm up** and we begin to **sweat**.

Increased lactic acid production
Occurs as a result of **prolonged high intensity anaerobic exercise** where there is a **lack of oxygen** in the muscles.

THIS CAUSES… - **Muscle fatigue,**
- **Pain/Discomfort/Aches in muscles,**
- **Decrease in performance levels,**
- **Slower recovery rate**

An intake of oxygen helps to convert lactic acid into waste products. H2O and CO2

Skeletal System



There are no short term effects

LONG TERM EFFECTS

Increase in bone density – Skeletal bone **increases** in its **density** as a result of **long term weight bearing** exercise (e.g walking and running). This makes bones stronger and can help to decrease the chances of **bone disease** such as **osteoporosis**. Osteoporosis is a disease in which bones become **fragile** and more likely to **break**.

1.2a Components of Fitness

Definitions

AGILITY
The **ABILITY** to **CHANGE DIRECTION** at speed

BALANCE
The **ABILITY** to keep your **BODY MASS** or centre of mass **OVER** a **BASE OF SUPPORT**

COORDINATION
The **ABILITY** to use **TWO** or **MORE BODY PARTS** at the **SAME TIME**

CARDIOVASCULAR FITNESS
The **ABILITY** to **CONTINUALLY** exercise without tiring.

FLEXIBILITY
The **RANGE** of **MOVEMENT** around a **JOINT**

MUSCULAR ENDURANCE
The **ABILITY** to use muscles **REPEATEDLY** without tiring

MUSCULAR STRENGTH
The **MAXIMUM FORCE** a muscle or group of muscles can **EXERT** against a **RESISTANCE**

POWER
The COMBINATION of **STRENGTH** and **SPEED**

REACTION TIME
The **TIME TAKEN** to **RESPOND** to a **STIMULUS** or make a decision to move

SPEED
The **ABILITY to MOVE the BODY QUICKLY**

Practical example

IMPORTANT in: For a winger in football to dribble a ball past a full back
NOT IMPORTANT in: snooker where no real change in direction is needed

IMPORTANT in: walking along a narrow beam in gymnastics
NOT IMPORTANT in: archery where the athlete stands still.

IMPORTANT in: cricket when catching.
NOT IMPORTANT in: weight lifting

IMPORTANT in: sports which require endurance such as the marathon and games like basketball**.**

NOT IMPORTANT in: Power sports like long jump and high jump.

IMPORTANT in: Gymnastics where a joint needs to move through a large range of movement

NOT IMPORTANT in: Archery – no great movement at joints.

IMPORTANT in: Long distance activities like the marathon where you need to perform consistently without tiring.

NOT IMPORTANT in: power sports like discuss or 100m

IMPORTANT in: sports where you need to exert a large mount of force like a tackle in rugby

NOT IMPORTANT in: Lawn Bowls where no real force is relevant.

IMPORTANT in: shot putt where a fast technique and strength will result in a long throw.
NOT IMPORTANT in: marathon

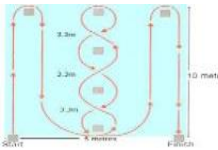
IMPORTANT in: 100m where the gun is a stimulus
NOT IMPORTANT in: golf as nothing to react to.

IMPORTANT in: rugby to outpace a defender

NOT IMPORTANT in: lawn bowls

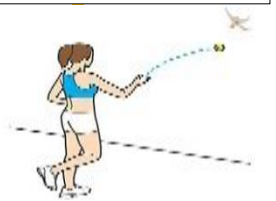
Suitable Tests

Illinois Agility Test
-Requires you to RUN IN and OUT of a series of CONES over a 10M by 5M AREA as fast as you can.
-It is an AGILITY test.

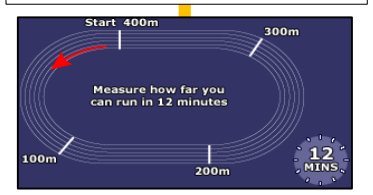


Standing Stork
Requires you to STAND on ONE LEG for as long as possible. The heel should be raised.
It is a BALANCE test.

Wall Throw
-Stand two meters from the wall and throw a tennis ball under arm to the wall and catch with the opposite hand. Repeat continuously for 30 seconds.
-It is a COORDINATION test.



Bleep test
Run across a 20m distance keeping in time with the beeps. Miss the beeps on 3 successive occasions and you're out.
COOPER's 12 MINUTE RUN
- Requires you to RUN as FAR as you can in 12 MINUTES.
- It is a CARDIOVASCULAR FITNESS (ENDURANCE) test.



Sit and Reach Test
-Requires you to STRETCH FORWARD with both HANDS as far as you can whilst STRAIGHT-LEGGED
- It is a FLEXIBILITY test

Press Up Test
- Complete as many press ups as you can in one go.
- It is a MUSCULAR ENDURANCE test

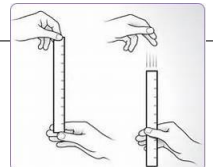
The sit up test
Measure the **number of sit ups** sticking in time with a **beat.** When the individual **fails** to **keep up with the beat they have reached optimum level**

Hand Grip
- Requires you to GENERATE as much FORCE as you can with a GRIP DYNANOMETER
.

1 REP MAX The maximum weight that can be moved a distance for one repetition. Usually done with the **bench press.**

Vertical Jump
Requires you to JUMP as HIGH as you can from a STANDING START. The DISTANCE between this POINT and where you can REACH NORMALLY when STANDING is MEASURED.
Standing jump
JUMP as **FAR** as you can from a **STANDING START**. The **DISTANCE** is **MEASURED**.

Ruler Drop
Requires you to CATCH a ruler with your FINGER and THUMB which is dropped by a PARTNER. The DISTANCE the ruler DROPPED before it is CAUGHT is measured.
It is a REACTION TIME test.



30 Metre Sprint
Requires you to SPRINT 30M from a STANDING START.
It is a SPEED test.

1.2.b Physical Training

SPECIFICITY; is **MATCHING** the **TRAINING** to the **REQUIRMEENTS** of your **ACTIVITY** or **SPORT**. For example a **SPRINTER** should complete **ANAEROBIC** training because the event is anaerobic.

OVERLOAD; Working the body **harder** than **NORMAL** so that there is some **STRESS** and **DISCOMFORT**. There are **4 WAYS** you can do this (**F.I.T.T**)

Overload training using the FITT principle →

FREQUENCY; by training **MORE OFTEN** (3 times per week instead of 2)
INTENSITY; by training **HARDER** (at 80% of your maximum heart rate not 75%)
TIME; by training **LONGER** (30 minutes instead of 25)
TYPE; by training with a different **METHOD** (Interval training not Fartlek)

PROGRESSION; **OVERLOAD** should become **PROGRESSIVELY** more **DIFFICULT**. Once **ADAPTATIONS** have occurred even more **DEMANDS** should be put on the **BODY.** (e.g once bench pressing 40kg becomes easy move up to 45kg).

REVERSIBILITY; **PERFORMANCE** can **DETERIORATE** if training **STOPS** or **DECREASES** in **INTENSITY** for any length of time. (E.g injury or the off season)

Principles of Training

A **training programme** for a **sprinter** wanting to improve **speed** and **power**

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
W1	Rest	Weight 30mins	Rest	Plyometrics 25 mins	Rest	Rest	Rest
W2	Rest	weight 30mins	Rest	Plyometrics 25 mins	Rest	Rest	Rest
W3	Rest	Weight 45 mins	Rest	Plyometrics 30 mins	Rest	Interval sprints 30mins	Rest
W4	Rest	weight 45mins	Rest	Plyometrics 30 mins	Rest	Interval sprints 30mins	Rest
W5	Rest	Weight 1hr	Rest	Plyometrics 40 mins (INJURED)	Rest	Interval sprints 30mins	Weight 1hr
W6	Rest	Weight 1hr	Rest	Plyometrics 40 mins	Rest	Interval sprints 30mins	Weight 1hr

Specificity; this training programme is appropriate for a sprinter as weight training, plyometrics and interval training all help to imrpve speed and power.

Overload & Progression the FITT principle has been used;
Frequency; number of sessions increase week by week.
Intensity: we can assume the sessions will become harder as the weeks go by.
Time: sessions increase in time
Type: a variety of sessions have been used

X = Reversibility: During W5 an injury was picked up and future sessions were cancelled. This would result in deterioration of fitness.

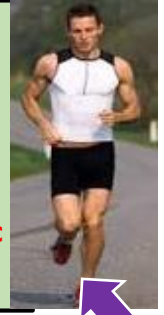
Types of training

Continuous training

Definition; Training that involves activity **WITHOUT REST** intervals. It can be **PERFORMED AT ANY INTENSITY.**

Example; Going for a **JOG** for 30 - 60 minutes at 60-85% of your **MHR**

Component of fitness: develops **AEROBIC** components such as **CARDIOVASCULAR FITNESS** and **MUSCULAR ENDURANCE.**



Fartlek training – 'SPEED PLAY'

Definition; CONTINUOUS EXERCISE with **CHANGES** in **SPEED** and **TERRAIN.**

Example; WALK 50 METRES, JOG 50 METRES, SPRINT 50 METRES or **JOGGING UPHILL** and **DOWNHILL.**

Component of fitness: develops **AEROBIC** and **ANAEROBIC** components specifically; **CARDIO VASCULAR FITNESS, MUSCULAR ENDURANCE, SPEED**

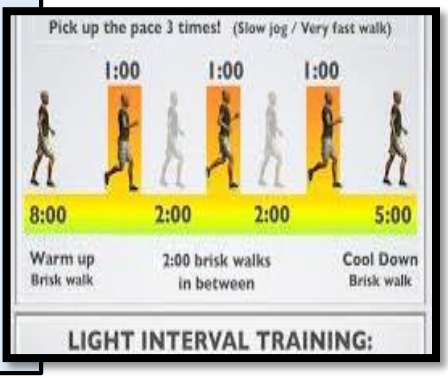
Interval training

Definition; Training with **PERIODS OF EXERCISE** alternating with **PERIODS OF REST**.
Can be aerobic or anaerobic.

Component of fitness: develops FITNESS COMPONENTS of **SPEED** and **POWER.**

Example: commonly used by **games players**, typical activities include; **jogging** then **walking**, **swimming** at **higher** and **lower intensities**, rowing then resting.

The 4 sub categories of Interval training: **Circuit training, Weight training, Plyometric training, HIIT training (high intensity interval training)**



4 Sub-Categories of interval training

HIIT (high intensity interval training) -

Definition; SHORT, very **HIGH INTENSITY** exercise periods followed by similar periods of **REST.**

Example; **30 SECONDS WORKOUT** at near **MAXIMUM EFFORT** (can be **SPRINTS, BURPEES** e.t.c) with **RECOVERY PERIODS** of the same amount. Sessions 20-30 minutes

Component of fitness: **CARDIOVASCULAR FITNESS, MUSCULAR ENDURANCE, SPEED, POWER**

Plyometric training (a form of interval training)

Definition; Muscles **STRETCH** before they **CONTRACT** in one **CONTINUOUS MOVEMENT.**

Example; BOX JUMPS, SKIPPING, BOUNDING, JUMPING, HOPPING.

Component of fitness: SPEED AND STRENGTH

Weight training (a form of interval training)

Definition; MOVING WEIGHTS or **RESISTANCE MACHINES in REPETITIONS (REPS)** and **SETS**, to **INCREASE MUSCULAR STRENGTH**

Example; BACK SQUATS, BENCH PRESS, SHOULDER PRESS. 3 sets of **8 reps** working at **80%** of **1 rep max.**

Component of fitness: STRENGTH, POWER (HIGH WEIGHT & LOW REPS) and **M. ENDURANCE (LOW WEIGHT & HIGH REPS)**

Circuit training (a form of interval training)

Definition; VARIOUS EXERCISE STATIONS which are completed one after the other in a SPECIFIC **AMOUNT** of **TIME. REST PERIODS** can be included between **EACH STATION** and after a **CIRCUIT.**

Example; PRESS UPS, SIT UPS, SHUTTLE RUNS, SKIPPING, REST, then **REPEAT.** 30 seconds at each station.

Component of fitness: Develops**AEROBIC** and **ANAEROBIC** components specifically; **CARDIO VASCULAR FITNESS, MUSCULAR ENDURANCE, SPEED, POWER** and **STRENGTH**

1.2b Warm up/ cool downs + 1.2c Prevention of Injury

1st -**Pulse raising;** exercises that slowly increase the heart rate e.g jogging, skipping

2nd **Mobility;** exercises that take the joints through their full range of movement (ROM) e.g arm swings, high knees, heel flicks

3rd **Stretching;** dynamic or static. Dynamic stretches are on the move e.g lunges and squats. Static stretches are where the body remains still e.g touching your toes to stretch the hamstring.

4th **Dynamic movements;** movements that show a change of speed and direction e.g slalom shuttle runs

5th **Skill rehearsal;** practicing common movements likely to be used in the main activity e.g dribbling and passing drills

Components of a warm up

Components of a cool down

Low intensity exercise; gradually lower the heart rate and reduce the bodies' temperature with easy movements and exercises e.g light jogging.

Stretching; steady static stretches e.g touching your toes to stretch the hamstring.

Minimising risk of Injury in Sport

Personal protective equipment should always be warn; E.g mouth guard in rugby to prevent a player from losing his teeth.

Correct clothing/footwear; E.g Football boots should be worn to prevent slipping and causing injury. Waterproof clothing should be worn during adventurous activities such as skiing to prevent getting cold and wet and in extreme cases pneumonia.

Appropriate level of competition; Age, fitness level and skill level should be taken into consideration. E.g don't compete in a marathon without training. As a child don't compete in a rugby match against students 3 years older than yourself.

Lifting and carrying equipment safely; E.g ensure the weight lifted is appropriate and the correct form is carried to prevent injuries. Lift a player properly in a lineout in rugby or weightlifting in the gym.

Use of warm up and cool downs; whether serious competition or just recreation play athletes should be prepared by carrying out the correct warm up and cool downs.

Benefits of a warm up

The following adaptations will occur during a warm up preparing the body for physical activity, preventing likelihood of injury;

Gradually raises **body temperature** and **heart rate**

Gradually **warms muscles**.

Increase in the **flexibility** of **muscles** and **joints**

Increase in the **pliability** of **ligaments** and **tendons**

Increase in **blood flow** and **oxygen** to the **working muscles**

Increase in the **speed** of **muscle contractions**.

Benefits of a cool down

The following adaptations to the body will occur during a cool down;

Helps the bodies **transaction back** to a **resting state**

Gradually **lowers heart rate** and **breathing rate**

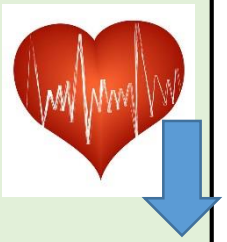
Gradually **lowers body temperature**

Circulates blood and **oxygen**

Increases **removal** of **waste product** such as **lactic acid**

Reduces the risk of **DOMS (Delayed onset muscle soreness)** and **stiffness**

Aids **recovery** by **stretching muscles.**



Potential Hazards in Sport

A **risk assessment** is carried out in order to measure the chances of an accident happening and to **input procedures to prevent** them from happening. This could be carried for the following places:

Sports hall; Check walls, doors, lighting, windows, hard floors, equipment left out.

Fitness Centre; Check walls, doors, lighting, equipment left out, free weights.

Playing Field; litter, dog muck, broken bottles, goal posts, fencing, pitch surface.

Artificial Outdoor Areas; litter, dog muck, broken bottles, goal posts, pitch surface
Swimming Pool; depth of water, cleanliness and chemicals in the water, surface around the pool, weather if outdoors, other participants.

UNIT 2

- Socio-cultural influences
- Sports psychology
- Health, fitness and well-being

2.1.a Engagement Patterns of Different Social Groups in Physical Activity and Sport

Participation Trends

5-18 year olds: At least **60 minutes of moderate** to **vigorous physical activity (PA) each day**.
19+ year olds: **150 mins** of **moderate PA each week.**

AGE – participation fall with increasing age.
GENDER – Men participate more than women
DISABILTY – Low but increasing participation rates
ETHNICITY - Participation amongst black and minority ethnic adults is increasing.

Most popular physical activities in regards to participation (in order).

1.Walking,
2.Swimming
3.Keep fit/ yoga/ aerobics,
4.Cycling

Organisations with the objective of raising participation rates in sport and physical activity.

These **organisations** share the objective of helping **communities develop sporting habit's for life.**

- Department of Culture, Media and Sport (DMCS)
- Sport England/ Youth sports trust/national lottery
- **National Governing Bodies** (NGB's); for example the FA (Football Association), ECB (England and Wales Cricket board), RFU (Rugby Football Union), LTA (Lawn Tennis Association)

Strategies & initiatives organisations use to improve participation.

APP

Strategy

-Promotion of sport convincing people to take it up. E.g use of **media** and **role models** to **highlight benefits**.
- **Provision** of **facilities**,e.g **specialised equipment** and **specialised coaching** for all including the disabled.
- Access - giving opportunity to participate and engage in sport. E.g **wheel chair ramps**, minibuses for disabled.

Initiatives

- The '**Inclusive sports programme'** created to **increase** the number **disabled people playing sport**.

STIC

- Sport England strategy '**Create a sporting habit for life'** developed to **raise participation** in sport & PA in **older groups.**

- Funding of the '**Sporting Equals'** project designed to help involve more people from **black and minority ethnic** (BME) communities.

- The '**This Girl Can'** projects are given funding to **encourage female participation**

Social groups affected by lower engagement trends in physical activity and sport.

Memory Tip:
A.G.E.D

AGE

Neg: Sport is **perceived** as a '**young person's game'.** Older people may **lack confidence/self-esteem** to take part.

Neg: **teenagers stop** their involvement due to **school work**, **computer games**, or general **lack of interest**.

Pos: **Life expectancy** has **increased** as has the amount of **veteran's sports teams**.

GENDER

Neg: Being **good/interested** in **sport** can be seen by some as '**unfeminine**'.

Neg: there is a **lack of interest** in **women's sport** in the **media**, aside from '**what they look like'.**

Pos: The number of **female TV Sports presenters** is **growing** promoting **role models** in sport for women.

ETHNICITY

Neg: **Discrimination** may lead to **Minority Ethnic Backgrounds** feeling they '**don't belong'** in certain sports because of the **prejudice** exhibited by others. E.G, **fewer coaching opportunities** in **football** for **B.E.M** groups.

Neg: Certain **faiths** and **beliefs discouraging participation** in some activities.

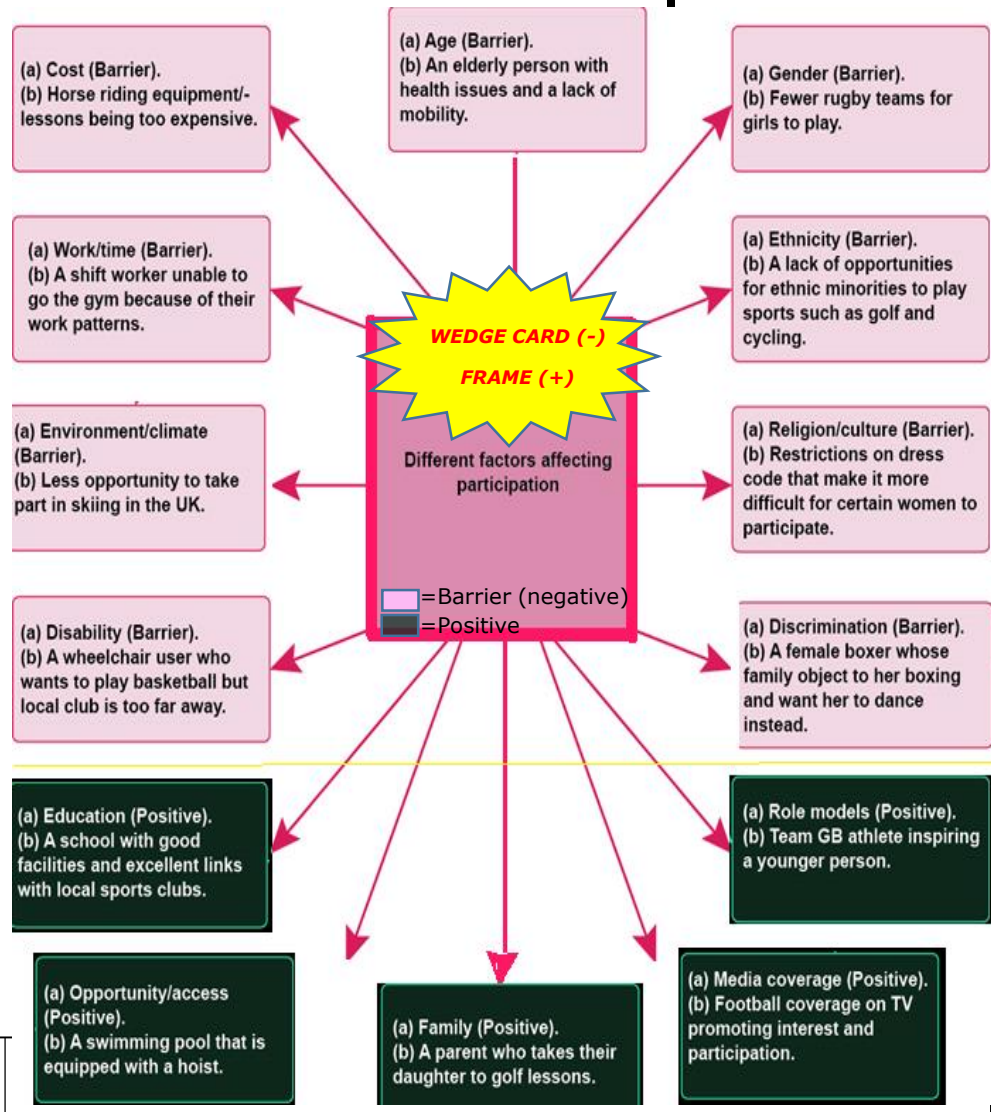
Pos: Development of **sport hijabs** being **worn** by **female role models** in different sporting competitions.

DISABILITY

Neg: **Clubs** are **unable** to **afford specialist equipment** to **enable** the **disabled** to **participate.**

Neg: Disabled people may **face problems** in getting **access** to **suitable facilities** and may feel **discriminated against**. Some may **lack** the **confidence** to get **involved** or **find** an **activity** to suit their **disability.**
Pos: ***E***xamples of **disability sport** being shown on **T.V (Paralympics)**

Factors affecting participation in physical activity and sport.



2.1.b Commercialisation of Physical Activity and Sport

Definition: The giving of **money** or **goods to performers** in order to get **good publicity** and/or increase **profit.**

This would be **mutually beneficial** to **both parties**. **Receiving sponsorship** could allow a team to buy a **new kit**. Sponsoring a team helps to **advertise** a **business** or **product**.

Explain 'Sponsorship'

Commercialisation refers to the **influence** of **business** (**buying** and **selling** on a large scale), on an **industry** (e.g. sport) to make a **profit**.

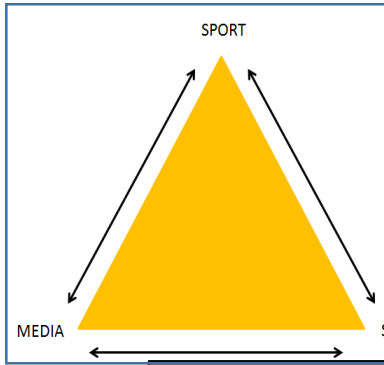
The Media and commercialisation of Sport

Television companies (sky/BT) **spend** an **enormous** amount of **money** on **broadcasting rights** to **sports events** but **gain a big profit.** e.g Premiership Football/Rugby, Boxing.

Sponsorship and commercialisation of Sport

The exercise and **sport industry** has become a **big business** with **large amounts** of **money being spent** by **commercial companies** on individuals, clubs and events. For example, Nike sponsor Ronaldo to wear their footwear.

Explain 'Commercialisation'



The '**golden triangle'** refers to the **links** and **relationship** between **sponsorship, sporting events** and the **media**.

As **one becomes** more popular or **powerful** the others will **grow** with it, just in the way that if **one** element **dropped out** the **triangle** would **cease to exist**.

This has **increased** in **recent years** with sport becoming a **product bought** and **sold** by the **media** for **financial gain.**

Sport and sponsorship provides £ for media
Sponsorship and media provides £ for sport

The Golden Triangle (the *relationship between sport, sponsorship and media)*

How media promotes sport.

Media refers to different forms of **communication** that can **inform**, **educate** and **entertain** people.

Social media – following **professional athletes** on Facebook, Twitter and Instagram can **entertain** people, **create role models**.

Internet/Apps –BBC Sport and Sky Sports websites can **inform** people of **latest scores** and **transfers**.

TV/visual - Sky sports showing coverage of sports events can **entertain** people, leading to **investment** and **participation** in **sport**.

- More people start to **play tennis** when **Wimbledon** is on the **TV**.
- Watching Jamie Carragher and Gary Neville's **analysis** on **Monday Night Football** can **educate** people.

Newspaper/magazines – articles in papers such as 'The Sun' and 'The times' can **inform and introduce new supporters to sport,** as well **as educate** and **entertain** people.

Advantages and Disadvantages of Media commercialisation on sport.

Advantages

- ***Provides a shop window*** for **business** and their **products** as well as the sports (e.g Neymar modelling the new Barcelona kit).
- **Provides** more **funds** to **sports** and **participants** via **advertising** and **sponsorship** (e.g MasterCard pays a lot of money to UEFA to sponsor the champions league thus raising the prize money)
- **Coverage** (action replays, commentary, and professional analysis) can be **exciting**, **interesting** and entertaining therefore more **attractive** to people to **participate** and **support**.
- **Influence rules** and **times** of **play** to make the sport more **accessible**, which in turn helps to sell goods. (e.g introduction of hawk eye in tennis and cricket. Monday night football so football fans can watch a game on a Monday night).

Disadvantages

- Can **highlight poor behaviour** e.g. Luis Suarez biting Ivanovic
- Can **assert too much control** over a **sport** e.g Sky TV changing kick off times (few football games have Saturday 3pm kick off).
- **Few** too many **sports benefit** (mainly only male football, cricket, rugby, tennis and golf)
- **Under representation** from **minority groups** e.g disabled

Advantages and Disadvantages of Sponsorship commercialisation on sport.

Advantages to the performer	Disadvantages to the performer
• Full time training – full concentration on sport. • Covered expenses – sporting equipment, competition entry and travel paid for.	• Sponsorship being limited or withdrawn – leading to a reduction on the advantages to the performer seen above. • Sponsors giving a bad image (alcohol/tobacco).
Advantages to the sponsor	**Disadvantages to the sponsor**
• Healthy attractive image. • Reduced tax bill. • Excellent advertising.	• Negative reflection if performer behaves badly. • Uncertain investment with sporting success not guaranteed.

2.1.c Ethical and Socio-Cultural Issues in Physical Activity and Sport

- Shaking hands at the beginning/end of a competition.
- Stopping if someone is injured in football
- Kicking the ball out to stop the game if someone injured in football.
- Congratulating your opponent during or after a match
- Not celebrating in the face of the opposition players/spectators if winning/scoring.
- A tennis player giving time to their opponent if injured
- 'Walking' when out in cricket

1. It **protects individuals** (safe/less dangerous).
2. **Respect** between **team mates** and the **opposition** allows the **game** to **flow effectively**
3. It allows **participants** and **spectators** to **enjoy** the a**ctivity**
4. It **can improve quality** of **performance**

Sportsmanship is referred to as **ethical, appropriate, polite** and **fair play/behaviour** while **participating** in a game or **athletic event**

Value of Sportsmanship

Gamesmanship: **'Pushing** the **limits** to gain **unfair advantage'**. Although **not illegal**, acts of gamesmanship are not in the **spirit of the game**. Eg;

- Diving for a penalty during a football match
- A middle distance runner shoving another runner during a race.

Deviance: behaviour that is **immoral** or **seriously breaks the rules** and **norms** of the **sport**. E.g;

- Football hooliganism,
- Fighting during a game of rugby,
- Taking performance enhancing drugs,
- Cheating by moving your ball with your hand in golf.

Gamesmanship and Deviance

Player violence in sport is considered as **physical acts** that **go beyond** the accepted **rules of play** or the expected levels of **contact** within a **contact sport**.

Acts such as **head-butting**, **punching** and **kicking** can be seen occasionally in sports such as football and rugby and are usually **punished** with **fines** and **long term bans or suspensions**.

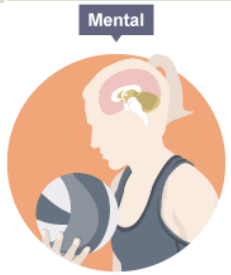
Player Violence in Sport

Reasons for player violence/ deviance

- Result of losing
- Retaliation to a challenge/tackle
- Over arousal during a game
- Poor decisions by officials
- Gain an advantage/hurt your opponent
- Taunting from crowd/opponents
- Controlled aggression for effective play
- As a result of the influence of drugs.

Why Sports Performers Use Drugs

Physical reasons	Psychological reasons	Social reasons
1.Build muscle 2.Increase energy 3.Increase 02 Transport 5.Lose weight 6.Train harder 7.Mask injury 8.Reduce tiredness	**1.Steady nerves, 2.Increase aggression 3.Increase motivation**.	**1."Win at all costs" attitude 2.Pressure from coaches, 3.Pressure from peers and media, 4.Win to earn money 5.Fear of not winning 6.Belief that everyone else is doing it 7.To be entertaining**



Drug Use in Sport

Performance Enhancing Drugs are **generally illegal** and **people** are **forbidden** by law to **possess** or **supply** certain substances.

Disadvantages for the Sport …

Drug use brings **Sport** in to **disrepute**.

Anti-doping regulations and **regular drugs testing** has been brought into **professional sport** because **drugs breach the ethics of sport and undermine the principles of fair participation.**

Disadvantages for the Performer…

Performance enhancing drugs can become **addictive** which can have a **negative effect** on **social health** e.g falling out with family and friends.

They can also effect the **mental** and **physical health** of an individual.

	Anabolic Steroids	Beta Blockers	Stimulants
Advantages	**Anabolic steroids;** these have a positive effect on performance in **power sports (100m, Rugby, American Football)** because they **increase muscle size, muscle strength** and **make bones stronger** allowing an athlete to **recover quicker** and **train harder.** Anabolic steroids can also help to **lower body fat**, **improve body shape/image** and **increase aggression.**	**Beta blockers;** these have a positive effect on performance in **sports** which **require steadiness (archery**) because they **slow** the **heart rate down, reduce anxiety** and **lower blood pressure.**	**Stimulants** (e.g. **amphetamines** and **caffeine**) are used to raise physiological arousal (**alertness)** in the body. Stimulants are helpful in sports that need **good reaction time** such as **100m sprint** (at the gun) and **badminton** (within a rally).
Disadvantages	**Anabolic steroids;** These have a negative effect because these cause **kidney and liver problems**, **mood swings**, **aggression, heart attacks/damage** and **cause male characteristics.** 	**Beta blockers;** they are negative because the **heart may actually stop beating** 	**Stimulants;** these are negative because they are **addictive** and they **cause high blood pressure**, **anxiety** and **insomnia** 

2.2 Sports Psychology Pt1 (Motor skills, skilled movement and Goal Setting)

Cognitive skills – how **we think**. (*e.g our '**decision making**' either with or without the ball)*

Perceptual skills – how **we see our surroundings.** *(e.g ability to '**read a game',** or an **opponents movements**)*

The term '**skill'** is made up of a combination of factors:

TYPES OF SKILL

Motor skills – '**A LEARNED MOVEMENT RESPONSE'** (how we do things).

Skilled performers are **not born** with **motor skills** and have to **learn** and **practise** them. Running, jumping and throwing are all '**motor skills.'**

*(e.g **Running, jumping** and **throwing** are all '**motor skills.** As is our **technique** when **shooting** or **executing a pass**).*

CLASSIFICATION OF MOTOR SKILLS

The different types of **skills** can be placed on a **'continua'** or 'scale'. **The Skills continua** is a method of **categorising skills** along a **continuum** according to their **level** of **difficulty.** There are 2 Continuums:

Environmental Continuum

Closed motor skill

Skills that are **performed** in a **predictable environment**.

- **Taking a throw-in, in football.**
- **Controlling the throw-in, in space**
- **A 40yrd through ball whilst being closed down by 3 players.**

Open motor skill

Skills that are **performed** in an **un-predictable environment**. They are;

- **Affected** by the **environment**
- **Predominantly perceptual** (must be **adapted** to suit the **environment)**.
- **Externally paced**.

Difficulty Continuum

Simple motor skill

Consists of **basic movement actions** that are **not difficult** to **perform** with **few decisions** to make.

- **A straight up and down jump.**
- **Catching a tennis ball.**
- **A slip catch in cricket.**

Complex motor skill

A **skill** which **requires;**

-Focusing to **process info.**

-Increased decision making.

- A **skill** with **Subroutines**

CHARACTERISTICS OF SKILLFUL MOVEMENT

When Messi picks up the ball and begins to dribble he performs a **'skilful movement'.** Characteristics are:

Aesthetic: the skill is **pleasing to the eye** when performed**.** *e.g. the basketball player shoots the ball using correct **technique** and **looks fantastic**.*

Predetermined: a skilled **performer knows what he or she is trying to do.** *e.g the trampolinest knows her routine before she starts.*

Efficient: not making any **unnecessary movements** which **waste energy/possession** *e.g no wasted energy when hitting a ball in cricket.*

Fluent: movements **flow** and are **coordinated** *e.g the rugby player **picks up** the ball and **passes** in one **flowing movement**.*

Co-ordinated: movements are **linked** well **together** and **body parts are in sync.** *e.g the volleyball player can **jump and 'spike'** successfully.*

GOAL SETTING

-Long term goals generally take place over **a year or a series of years.** *E.g I want to run sub 10 seconds in the Olympic 100m final next summer.*

-Medium term goals generally take place over a **3 month period.** *E.g I want to run a faster 1st half of the race.*

-Short term goals generally take place over **4-6 weeks.** *E.g I want to improve my speed out of the blocks.*

BENEFITS OF GOAL SETTING

- To Increase **focus** (attention and concentration)
- To **optimise** performance (improve specific skills/components of fitness)
- For task **adherence** (ensure you stick to the task/not give up)
- To **motivate** and encourage
- To Increase your **confidence**
- Gives a sense of **achievement**
- To identify **progress**
- To control your **stress** or anxiety

GOALS SHOULD BE SMART!

GOAL SETTING (S.M.A.R.T)

-SPECIFIC; this is when the goals are **CLEAR** and to the **POINT** (I want to jump **4 METRES** in the long jump)

-MEASURABLE; Goals should be **ASSESSED** in order to **JUDGE PERFORMANCE** (I'll measure my 'power' and asses my score against national averages))

-ACHIEVABLE; this is when the goals are **CHALLENGING** but **REALISTIC** and **WITHIN YOUR CAPABILITIES** (I jumped **3 METERS 90 CMS** last season so 4m is a challenge but I could do it)

-RECORDED; measurements should be **LOGGED** in order to **TRACK PROGRESS**, (I jumped 3m 50 last year therefore I have **IMPROVED** and shown **PROGRESS**)

-TIMED; goals have a specific **START DATE** and a specific **END DATE**. (I will start my programme on **1st May** and I want to reach my goal in **2 MONTHS** – the **30th June**)

2.2 Sports Psychology Pt2 (Mental Preparation, Guidance and Feedback)

Describe mental preparation

Mental preparation techniques are used in sport to **neutralise anxiety**. **Anxiety** is the **feeling of fear** that **something might go wrong** in either the present or the near future. *E.g. taking a penalty in the world cup final.*

Benefits of mental preparation

- Controls/heightens arousal levels
- Get 'in the zone'
- Improves concentration/focus
- Increases self awareness
- Allows effective clear decision making

Mental preparation techniques

PIMS

i) Imagery

Imagery is the creation of **picture** in our **minds** and is used prior or during completing a game/race/set piece/sporting action.

- It **heightens** or **controls** our **arousal levels**.

It can help with **relaxation** when **anxious** or **improves confidence/focus** when **under stimulated.**

An example would be imagining the ball flying through the posts in a rugby conversion.

ii) Mental rehearsal

Mental rehearsal is similar to imagery but **focuses** on the **whole performance** specifically on **technique** within a **sporting action.**

- It allows **effective, clear decision making**

External Imagery - picturing yourself doing the activity from outside your body. *E.g a formular 1 driver imagining the course from outside the car.*

Internally Imagery -imagining yourself doing the activity. *E.g A gymnast imaging themselves performing a floor routine and feeling when to go in/out of the specific movements.*

iii) Selective attention

Concentrating on what is **relevant** whilst **ignoring** irrelevant **distractions.**

An example would be a batman in cricket focusing on the spin on the ball, not the slip fielders sledging; trying to get him to lose focus.

v) Positive thinking/ 'self-talk',

positive thinking involves a **performer talking** to **themselves** or **thinking** how **successful** they might be. It helps with **self-confidence** and **motivation** and **blocks** out **negative thoughts**.

An example would be a golfer convincing himself his next drive will go straight down the middle of the fairway.

Types of guidance

VVMM

Type of Guidance	Description	Practical example	Advantages	Disadvantages
Visual	Uses demonstration, video, illustration or diagram to build an ideal picture of how to perform a skill	*Demonstration of a penalty flick in hockey*	• Forms a mental picture, • Easy to remember, • Quick and effective	• Ineffective if demonstration is incorrect, too complicated or gives information overload
Verbal	Describes or explains how to perform a skill	*Coach telling a striker to keep his head over the ball when shooting to keep it low.*	• Immediate and quick, • Fine tunes a particular focus • Used with visual to form a mental picture	• Hard to create a mental picture if information is negative, incorrect, complicated or gives information overload.
Manual	Physical support from a coach to guide the performer	*A coach supporting a gymnast to perform a handspring*	• Reduces fear and raises confidence • Increases safety • Gives a Kinaesthetic feel to the performer.	• Unrealistic kinaesthetic feel for the skill. • Overreliance on the support • Dangerous if incorrect.
Mechanical	Use of equipment to guide a performer	*A novice swimmer using a float*		

Types of feedback

NIPPER

I. Positive feedback

Given /received when a **movement is correct**. Can be **intrinsic** or **extrinsic**.

e.g. winning the man of the match award (extrinsic) proprioceptors informing you of good technique when making a 50 yard pass (ping) in football (intrinsic).

II. Negative feedback

Given/received when a **movement** is **incorrect**/needs **improving**. Can be **intrinsic** or **extrinsic.**

e.g. the teacher indicting that the technique of catching in softball is incorrect (extrinsic) or proprioceptors informing you of poor technique when deadlifting a heavy weight (intrinsic)

III. Intrinsic feedback

Information from internal sources (**Proprioceptors** in **muscles/tendons/joints**) helps us to **correct the skill**

e.g a pole vaulter can adjust technique during performance.

IV. Extrinsic feedback

Feedback from and **outside source** such as a **coach, crowd, scoring runs, winning games** and **prize money**.

e.g a coach praises an attempt at serving in tennis or crowd applauds a good tennis shot

V. Knowledge of performance

Concerns **quality** of **movement** or **technique** and **informs** the **performer** if the skill is **correct** or **incorrect.**

e.g. feeling the balance to control technique during a pommel horse sequence

VI. Knowledge of results

The **outcome** of the **movement**. Can be **positive or negative**.

e.g. a Rugby player sees his pass is accurate and so can choose next move.

2.3 Health, Fitness and Wellbeing

A diet that **contains** the **correct proportions** of **carbohydrates, fats, proteins (macronutrients), vitamins, minerals (micronutrients),** and **water** and **fibre necessary** to **maintain good health** and **match calorie expenditure** from **exercise.**

Define a 'BALANCED DIET'

Define…

Health - **the state of emotional, physical and social well-being.**
Fitness - **The ability to meet the demands of the environment.**
Wellbeing - **A happy, prosperous and healthy feeling or mental state.**
Sedentary lifestyle – Inactive and spending a large proportion of the day sitting down.

Explain the components of 'BALANCED DIET'

CARBOHYDRATES (POTATOES, RICE, BREAD and PASTA) are IMPORTANT because they provide **ENERGY.** Carbohydrates are crucial for **endurance events** such as the **marathon.**

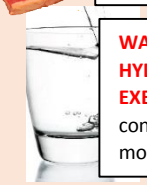
FATS such as **(MILK, CHEESE, BUTTER, OILS, CHOCOLATE** and **FATTY MEATS)** are **IMPORTANT** because they **PROVIDE ENERGY** when **CARBOHYDRATES** are **LOW.** They also **INCREASE** the **SIZE** and **WEIGHT** of the **BODY.**

PROTEINS such as **MEAT, FISH, NUTS, EGGS** and **POULTRY** are **IMPORTANT** because they **BUILD MUSCLE** and **REPAIR TISSUE** Protein can be **broken down** to provide **aerobic fuel** if **no other fuel** is **available** (such as at the **end** of a **marathon** or in **cases** of **starvation**).

VITAMINS such as **VITAMIN C (**found in **FRUIT), VITAMIN A (**found in **CARROTS), VITAMIN B1 (**found in **NUTS)** and **VITAMIN E (**found in **VEGETABLE OIL)** are **IMPORTANT** for the **GENERAL HEALTH** of **VISION, SKIN CONDITION,** and the **CONDITION** of **BONES** and **TEETH**

MINERALS; CALCIUM (found in **MILK**) is **IMPORTANT** because it **STRENGTHENS BONES.**

IRON (found in **RED MEAT**) is **IMPORTANT** because it **PRODUCES RED BLOOD CELLS** so **MORE OXYGEN** can be **TRANSPORTED** around the **BODY**



WATER is **IMPORTANT** because it ensures that you are **HYDRATED** especially in **HOT WEATHER** or **DURING EXERCISE.** On average 2 litres of water should be consumed a day. People who exercise should drink more than this because they lose fluid through sweat.

FIBRE (GRAINS, FRUIT AND VEG) is **IMPORTANT** because it ensures your **DIGESTIVE SYSTEM FUNCTIONS** properly and it **LOWERS CHOLESTEROL.**

Diet and hydration in physical activity and sport.

An athlete's **diet** should be in **energy balance.** The energy they **gain from food and drink** should **match the energy they use to train and perform.** If this is **incorrect** an athlete could **lose weight (possibly muscle)** or **gain weight (possibly fat).**

Carbo-loading (storage of glycogen) helps to **increase energy production** and **delay fatigue.**

Sports drinks (Lucozade) contain **glucose** (sugar) and **electrolytes** (salt) which can be used to top up **energy** during training and **prevent dehydration.**

As an **athlete** its **important** to be **hydrated**. Being hydrated helps us to **remove waste products, regulate body temperature.**

Dehydration leads to **decreased stroke volume, raised heart rate** and thicker blood. This puts a greater **strain** on the **heart** and uses **energy more quickly**, leading to **early fatigue.**

Consequences of sedentary lifestyle and benefits of exercise on…

PHYSICAL HEALTH — TOPIC HBD

Consequence of sedentary lifestyle	Benefit from exercise
Develop **Type 2 diabetes**, a **lifelong condition** that **raises bloods sugar** to dangerous levels. It can cause **blindness** and **kidney failure** and is often associated with obesity.	Exercise **lowers blood sugar** levels and **reduces fat** making people less likely to develop **type 2 diabetes.**
Obesity (very over fat) can lead to, **high blood pressure**, **heart attacks** and **strokes.**	Exercising regularly **reduces fat** and therefore **obesity.**
Inactivity can lead to **poor posture** (**skeletal problems** and **weak back muscles**).	Exercise like **Pilates/Yoga** can lead to **good posture** with **fewer problems** with **back** muscles
More likely to suffer **injury** in **ordinary life** due to the **lack of physical fitness**.	Exercise help with the **rehabilitation** process after **injury**.
Lack of exercise may cause **Coronary heart disease** (CHD) a **build-up of fat** in the **coronary arteries** meaning a **poor blood** and **oxygen circulation.**	Exercise will help to keep the **heart** and **blood** supply **healthy** meaning less chance of **Coronary heart disease**
A sedentary lifestyle can cause a **high blood pressure** (hypertension) which can lead to a **stroke**.	Exercise can **reduce high blood pressure**, reducing chances of a **stroke**.
Inactivity can lead to **weaker bone density** making them **prone** to **fracture**.	**Weight bearing exercise** such as running (not swimming or cycling) **increases bone density**, making them **stronger**
Inactivity can lead to **low levels** of **fitness**. An unfit individual will **tire easily** and could suffer from **muscle damage**.	The more you exercise the **fitter** you become meaning you have the **ability** to **meet the demands of your environment.**

EMOTIONAL HEALTH — SIS

Consequence of sedentary lifestyle	Benefit from exercise
Inactive people tend to **develop low confidence (self esteem)** because they **lack energy** but also because they are more likely to be **obese**.	Exercise can help you to **feel better about yourself** and feel **confident** in the way you **look**. It can also **release serotonin 'the happy hormone'.**
An inactive person can develop a poor self-**image** which can often come from being **overweight.**	Exercise can result in people feeling that they **look good (image)** to **themselves** and to **others**.
Inactive people **dwell on life's difficulties** and may not have enough **outlets** to get rid of **stress** and **anxiety**.	The **stresses** of everyday life can be **forgotten or released with exercise.**

SOCIAL HEALTH — FBL

Consequence of sedentary lifestyle	Benefit from exercise
Inactivity can result in a person **not going out** very much, thus **not making friends**	Exercise can help people to make **friends** in **teams** and **clubs**. This will help to **improve self-esteem**.
Inactivity can result in **isolation** from a **community** leading to an individual feeling **dispirited** with no sense of **belonging**	Exercise provides **opportunities** for people to **belong to a club** and gain a sense of **belonging.**
Inactivity can result in a lack of people to talk to, this social isolation can lead to loneliness.	Exercise provides opportunities to **meet people** and **make friends.**