GCSE PE

Revision Booklet – Paper 1

Name .....

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Tutor.....

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Teacher.....

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Paper 1 –Anatomy & Physiology

About the Paper:

- **1 hour Paper – 60 marks total**
- **20 Questions in Section A (30 marks)**
  - These are shorter answers, focusing on your overall knowledge. It will include identify/label, multiple choice and describe stated topics.
- **3 (A&B) Questions in Section B (30 marks)**
  - This section will test your application of knowledge. It will give you information and ask you to identify the topics it wants you to discuss.

What will be in your Paper?

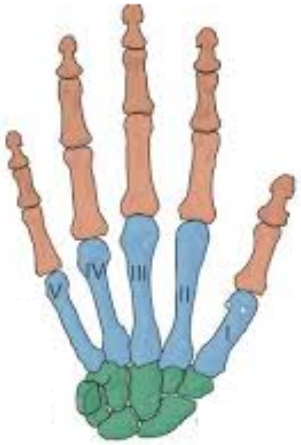
- Location of major bones
- Functions of the skeleton
- Types of Synovial Joints
- Types of Movements at Hine and Ball & Socket Joint
- The roles of muscles in movement
- Short and Long Term Effects of exercise
- Components of Fitness
- Principals of Training (SPOR & FITT)
- Structure and function of the respiratory system
- Aerobic and Anaerobic respiration
- Structure and function of the cardiovascular system
- Planes of Movement and Axes of Rotation
- Lever Systems
- Optimising Training
  - Methods of training
  - Warm Up
  - Cool Down
- Prevention of Injury

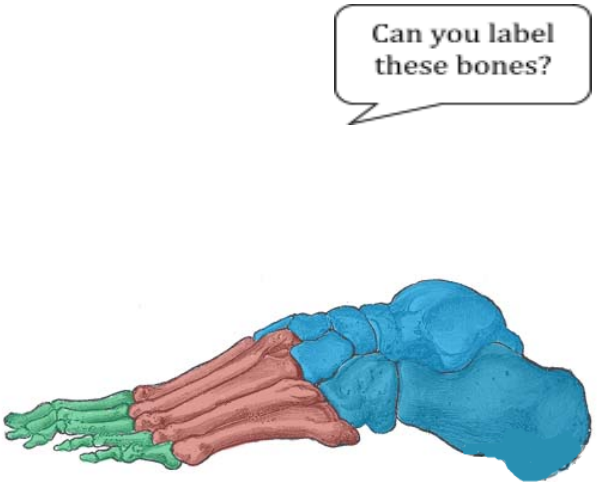
How to use this booklet:

- You should use the sections in this booklet to help you revise each section.
- This booklet contains space to make notes on the main points from each section of the specification, but by no means are any of the sections exhaustive.
- In addition to this booklet, you should make additional notes, do further reading and practice past exam questions on each topic.

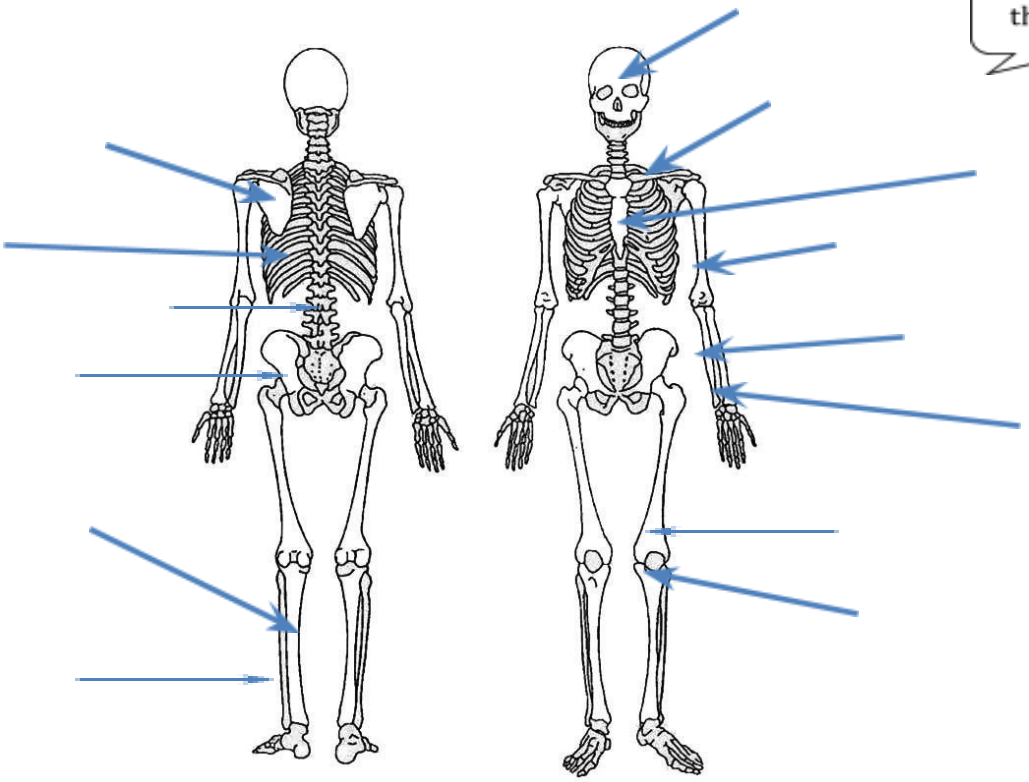
The Skeletal System

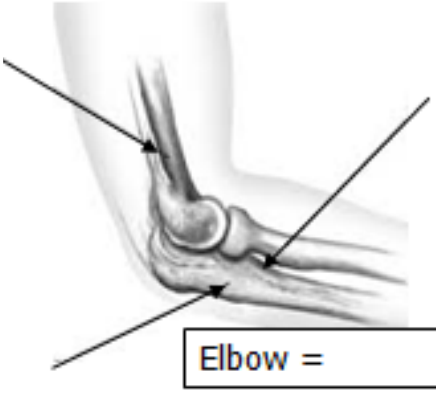
The 5 functions of the skeleton, including a brief description & practical examples:





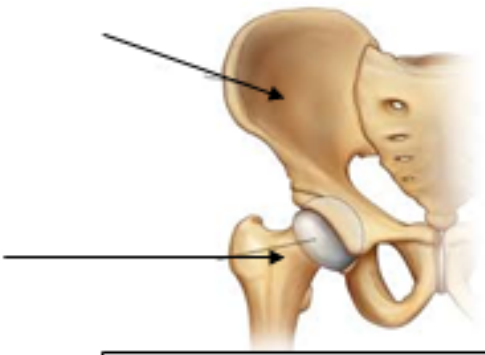
Can you label these bones?





Elbow =

Knee =



Hip =

Shoulder =

1. Label which type of Joint each is e.g. Hinge
2. Identify the articulating bones in each Joint

Types of Joints

HINGE JOINT:

Description of a hinge joint:

Example of one in use:

Examples of hinge joints:

Synovial Joints

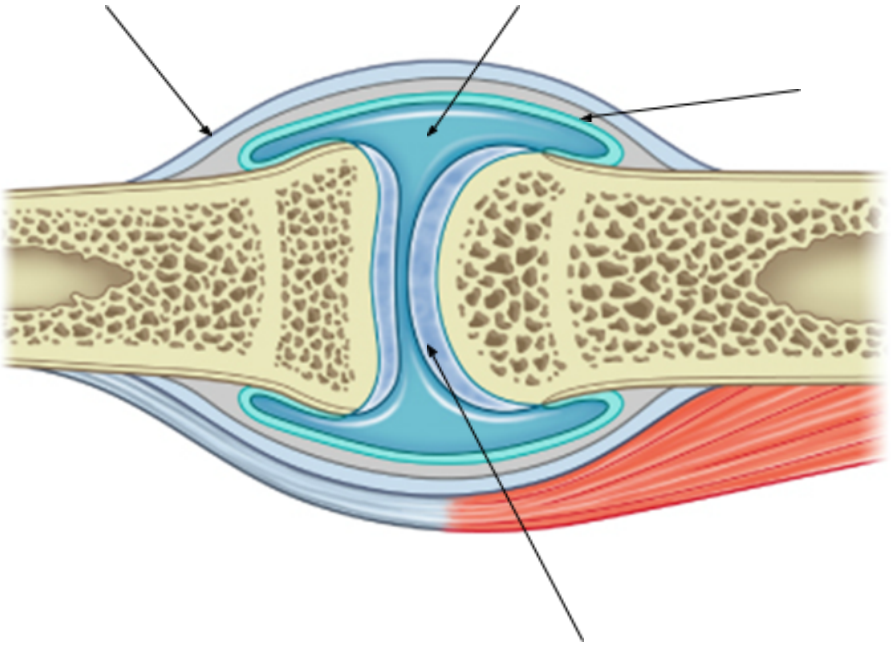
BALL & SOCKET JOINT:

Description of a ball and socket joint:

Example of one in use:

Examples of ball and Socket joints:

Can you label the joint?



TIP: If you are asked to describe a joint – picture this diagram and describe all of the components (i.e. two bones meeting, cartilage, synovial membrane, synovial fluid etc…

Can you identify the structure and role of these parts of a synovial joint including the connective tissues:

	ture	Function
Synovial membrane		
Synovial Fluid		
Cartilage		
Tendons		
Ligaments		

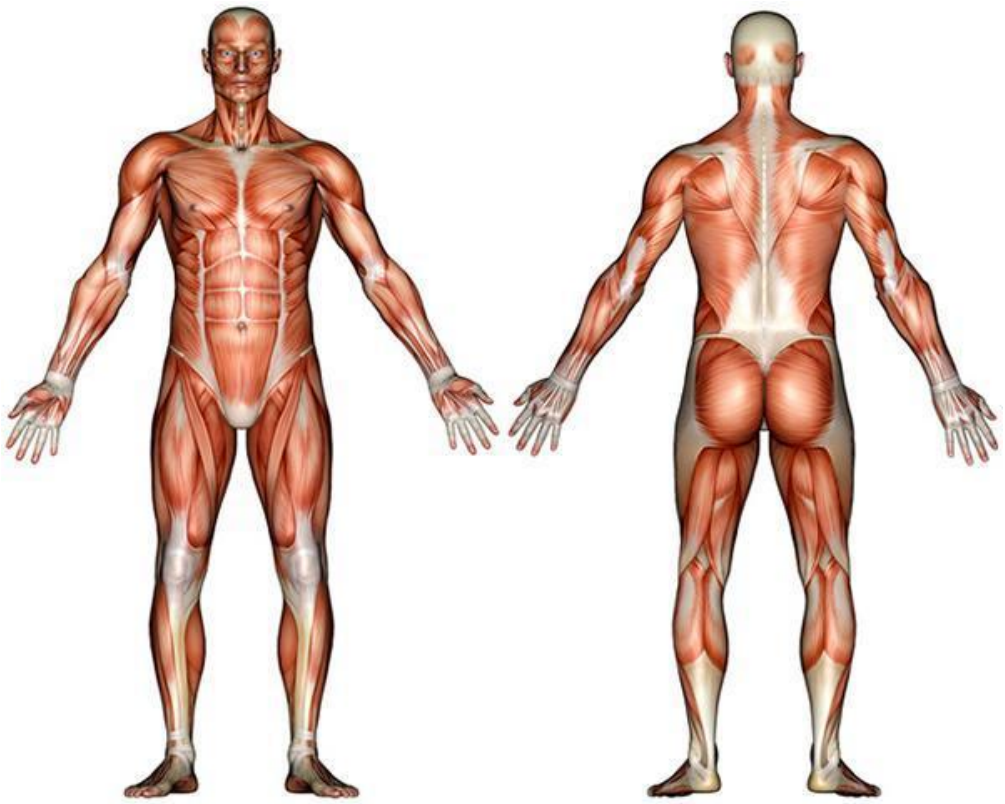
Tip: You must be able to give 3 points for each of the connective tissues including both about their structure and function?

Ranges of Movement

You should be able to describe and give examples for each range of movement:

EXTENSION	Description	Practical Example:
FLEXION	Description	Practical Example:
ABDUCTION	Description	Practical Example:
ADDUCTION	Description	Practical Example:
ROTATION	Description	Practical Example:
CIRCUMDUCTION	Description	Practical Example:

Muscles



Label the diagram above, using the muscle names below.

Deltoid	Triceps	Trapezius	Abdominals	Latissimus Dorsi
Quadriceps	Pectorals	Hamstrings	Biceps	Gastrocnemius
Gluteals				

	Description	Example
Antagonistic Pair		
Agonist		
Antagonist		
Fixator		

Can you work out which muscles are responsible for each movement?

Movement	Agonist	Antagonist	Fixtaor
Flexion of the knee			
Extension of the elbow			
Extension of the knee			
Flexion of the elbow			

TIP: Act out the movement to allow you to see it in action (even in the exam) then have a feel to see which muscles are contracting and which are relaxing. You should also be able to talk about agonists and antagonists for adduction and abduction.

Levers

Levers allow efficiency movement and create a mechanical advantage. They include:

Lever Arm ***Pivot/Fulcrum*** ***Effort/Force*** ***Load***

Complete the table below:

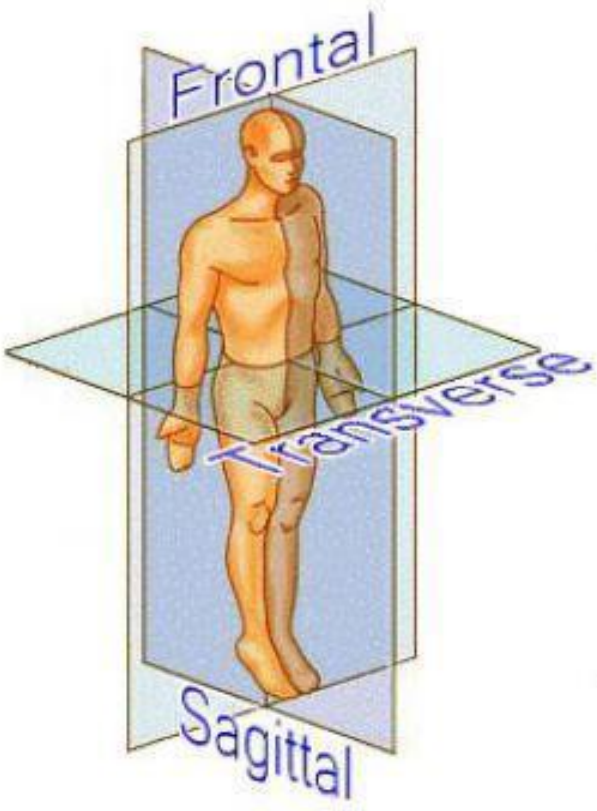
Levers	Diagram	Example in Body
1st		
2nd		
3rd		

TIP: Remember 1,2,3…FLE (this tells you which element is in the middle of the lever e.g. 1st class lever the fulcrum is in the middle)

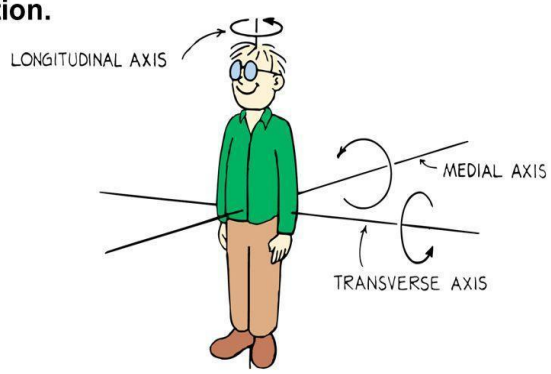
What is the formula for Mechanical Advantage?

Plane	Movement	Axis of Rotation	Example
Sagittal			
Transverse			
Frontal			

Planes of movement explain how the body moves it is useful o see the body having imaginary lines or planes running through it.



The human body has three principal axes of rotation.

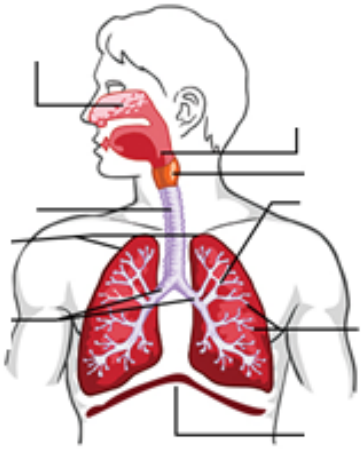


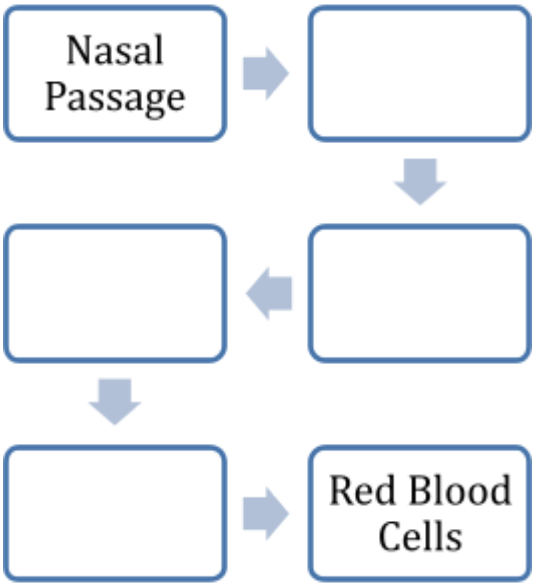
An **Axis of rotation** is a straight line which an object rotates.
The movement at a joint takes place in a plane about an axis.

TIP: Link the plane of movement and axis of rotation. Then think of multiple examples for the exam.

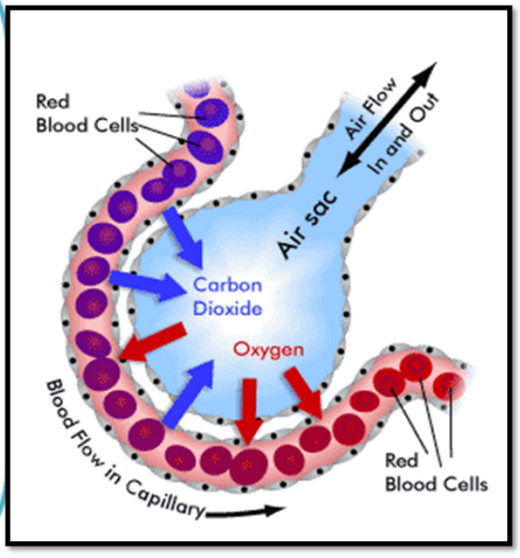
Respiratory System

Label the respiratory system

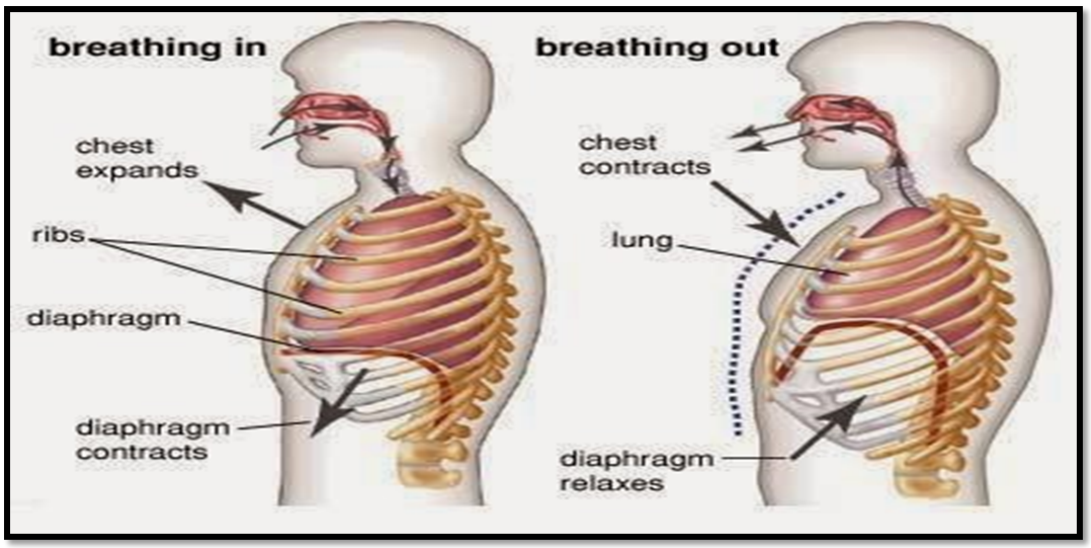




Describe how Gaseous Exchange occurs?



Mechanics of Breathing



Here are the key points for the mechanics of breathing. All you need to do is add the correct words for either inspiration or expiration into the box below

1. Diaphragm and External Intercostal muscles _____
2. This causes the Diaphragm to _____ and the Ribs and Sternum move _____
3. The Thoracic cavity volume _____
4. The Lungs are _____ in size
5. The air pressure _____ below atmospheric air
6. Air rushes _____ the lung

Describe the mechanics of breathing in stages.

Inspiration **Expiration**

Tidal Volume (TV)–
This is the _____ of air either inspired or expired _____

Minute Ventilation (VE)–
This is the _____ of air that is inspired or expired in a _____

Breathing Rate (BR) -
The frequency measured in _____

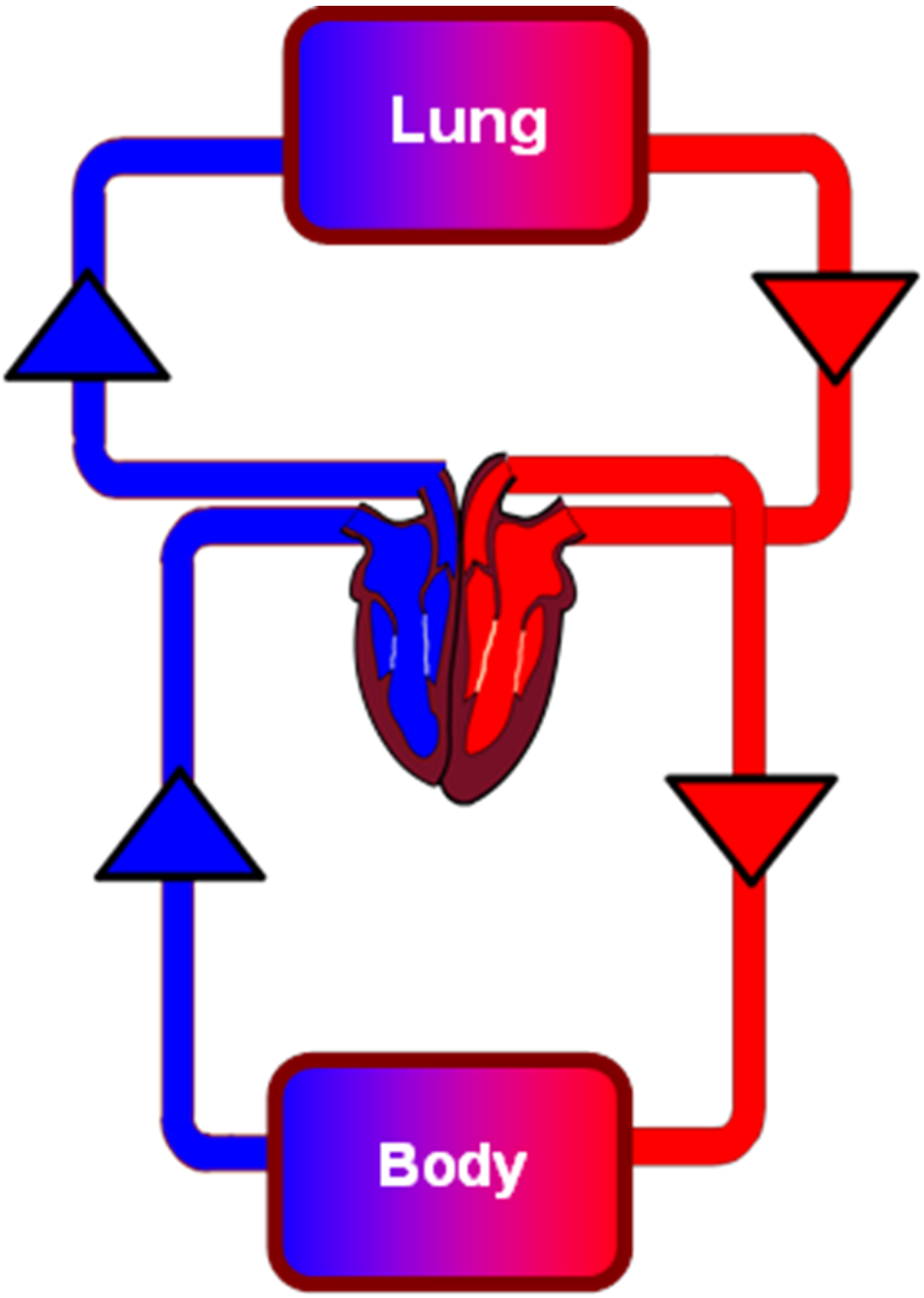
Equation for Minute Ventilation

VE =

This is measured in LITRES per minute!

Cardiovascular System

Label the diagram of the double circulatory system

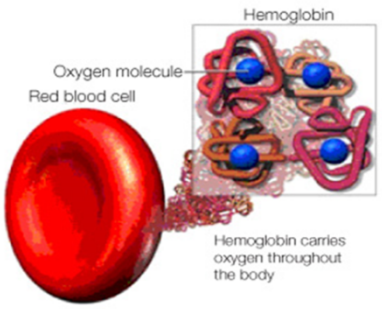


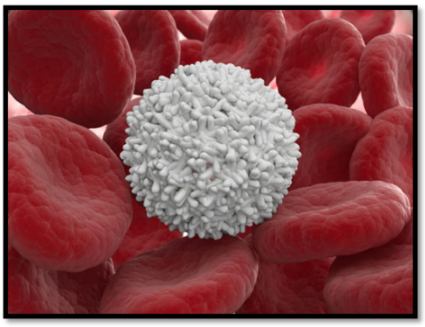
➢ **Can you add in the 4 Valves of the Heart?**

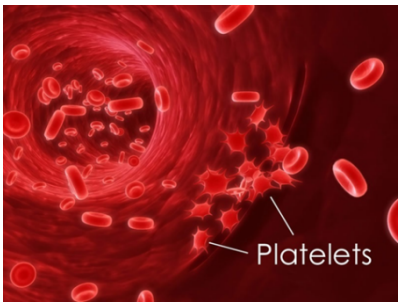
Blood Vessels	Description	Role
Artery		
Vein		
Capillary		

➢ **What is the purpose of a valve?**

TASK: Label each blood cell with its role in the body







Heart Rate (HR)–
Is the number of _____ (BPM)

Stroke Volume (SV) –
The _____ of blood pumped out of the heart per _____

Cardiac Output (Q) –
The _____ of blood that is pumped out of heart per _____

Cardiac Hypertrophy –
Increase in cardiac muscle _____

Peak Heart Rate
The Highest recorded bpm _____

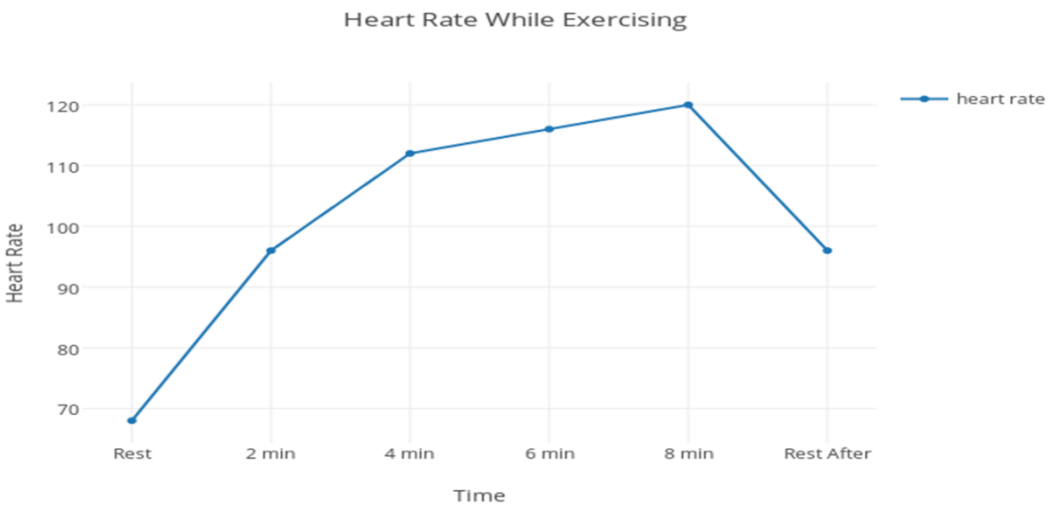
Maximum Heart Rate
This is the maximum your heart can _____ per minute (BPM).

HRmax = _____

Recovery Rate
How long it takes for a person's heart rate to _____ to its _____ heart rate after training. The quicker this happens, the _____ the person is.

➢ What is the equation for Cardiac Output?

Q =



What does the graph show you?

Effects of Lactic Acid

➢ Lactic Acid occurs when (doing what?)…

➢ Lactic acid can lead to (effects)…

➢ The effects of lactic acid on performance can be decreased by (what methods?)…

TIP: Never include cramp in an answer on Lactic Acid – they are two different things!
COOL DOWNS – Speed up the REVOMAL of Lactic Acid they ***do not prevent it***

Short-Term and Long-Term Effects of Exercise

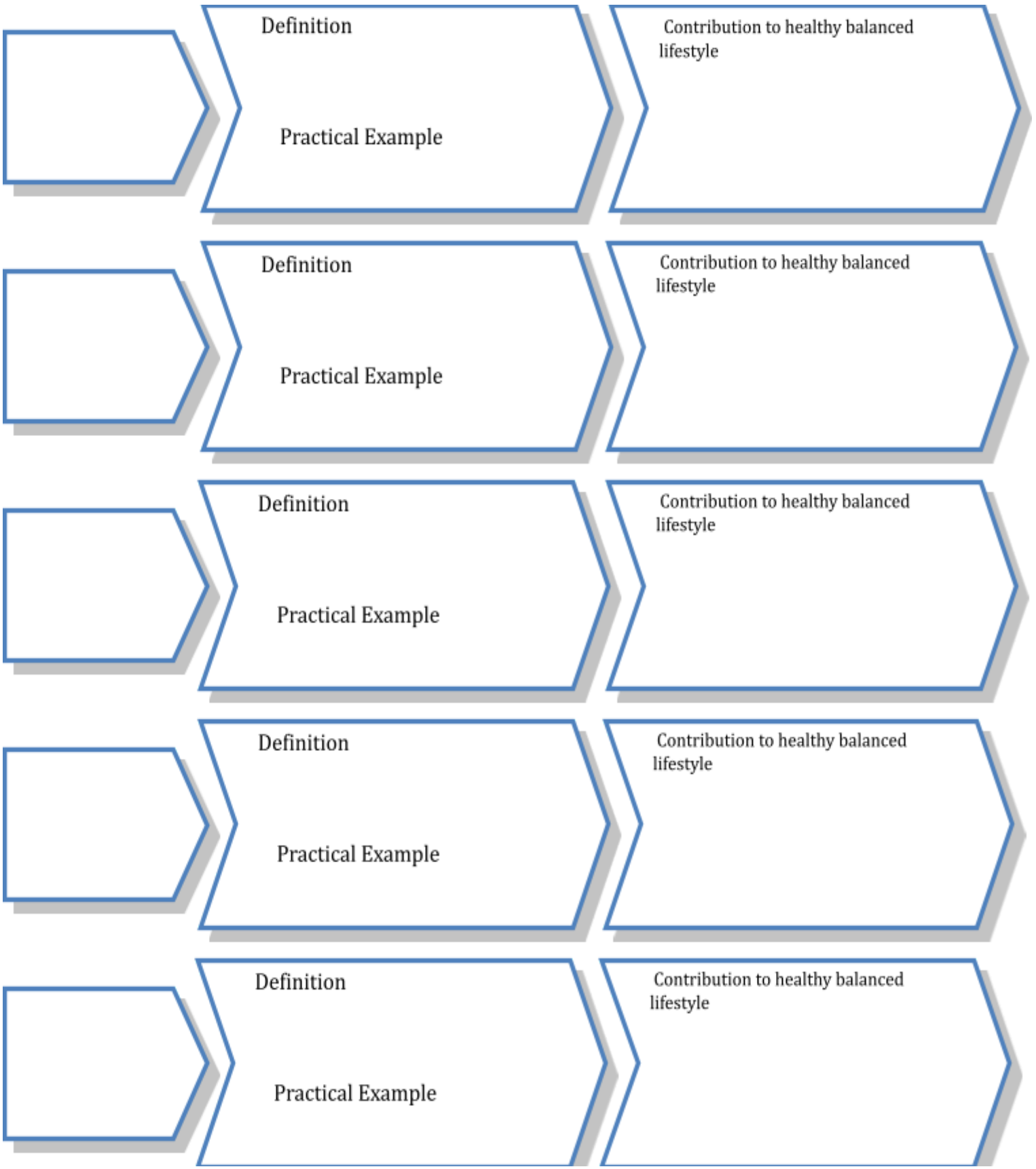
	RESPIRATORY	
	CARDIOVASCULAR	
	MUSCULAR	

Describe the VASCULAR SHUNT MECHANISM as a short-term effect of exercise on the CV system:

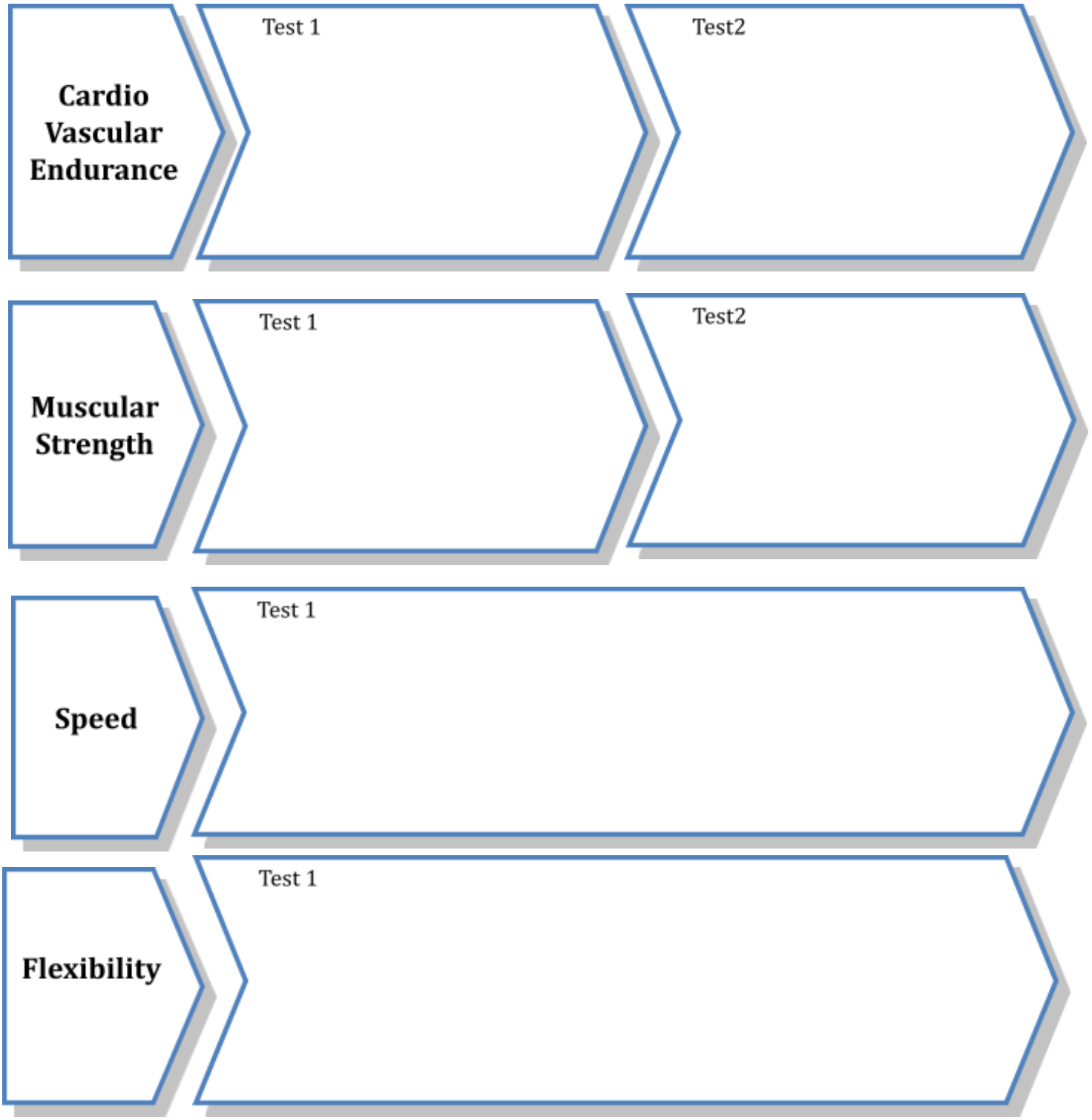
Components of Fitness

	Definition Practical Example	Contribution to healthy balanced lifestyle
	Definition Practical Example	Contribution to healthy balanced lifestyle
	Definition Practical Example	Contribution to healthy balanced lifestyle
	Definition Practical Example	Contribution to healthy balanced lifestyle
	Definition Practical Example	Contribution to healthy balanced lifestyle

Components of Fitness continued…



Describe up to two <u>fitness tests</u> for the following <u>components of fitness</u>



Muscular Endurance

Test 1

Test 2

Balance

Test 1

Coordination

Test 1

Agility

Test 1

Reaction Time

Test 1


Power
Test 1
Test 2

Principle of Training

	Description	Example
S P O R T F I T	*Links to FITT*	

T		

Types of Training

Provide a description and an example for each of the following types of training:

Continuous	
FARTLEK	
INVERVAL	
WEIGHT	
CIRCUIT	
PLYOMETRICS	

HIIT

Aerobic and Anaerobic Respiration

You should also be able to define, describe and explain what Aerobic and Anaerobic Exercise is and what the differences are between the two:

AEROBIC

Practical Example of Aerobic Exercise:

ANAEROBIC

Practical Example of Anaerobic Exercise:

Potential Hazards

You also need to be aware of potential hazards in the following areas:

	Potential Hazards	Risks
- The gymnasium - Sports hall - Fitness centre		
Playing Field		
Outdoor Adventurous Areas		
Artificial Outdoor Areas (Astro)		
Court Areas		
Swimming Pool		

TIP: A lot of the hazards are interchangeable between different environments. Just make sure that you make it specific to the area you are being asked about in an exam, especially if you are giving practical examples.

Minimising Risks

Describe how each of the below can help minimize risks in the sporting environment. You should be able to provide examples for each:

- **What is a Hazard?**

- **What is a Risk?**

- **What is an injury?**

Minimising the Risk	How does this minimise risk?	Examples
Correct clothing/footwear		
Personal protective equipment		
Warm up and Cool Down		

Lifting, carrying and placing equipment safely		
Appropriate level of Competition		

Why is personal hygiene important to avoid infections?

Common Sporting Injuries

What are the 7 common sporting injuries? Complete the table below:

Injury	Description	Treatment

15 TOP REVISION TIPS:

1. Start revising in **plenty of time** for your exam
2. Make a **revision timetable** *(see overleaf)*
3. Revision notes aren't supposed to look pretty – don't waste time doing this!
4. Revise in **45 minute blocks**, with **10 minute rest** breaks
5. Revise in a **clean, tidy and organised** environment
6. **Prioritise** your revision *(using the table at the front of this booklet)*
7. Don't spend too much time looking over topics you understand well – **your time is better spent on areas you don't understand as well**
8. Get at least **8-10 hours sleep** per night
9. **Wake at a reasonable time** (i.e. 9AM to begin revising) **you are more productive in the morning** and it means you can get your revision done early and have time to relax in the evenings
10. **Eat and drink well** – avoid sugary, fizzy and energy drinks and eat a healthy, balanced diet
11. **EXERCISE** – exercise helps clear the mind and increase concentration, always make time to exercise
12. Have a **rest day** each week to just allow yourself to relax
13. **Stick revision notes around the house** – on the fridge, in the bathroom, on your bedroom walls.
14. Keep your bedroom and particularly your desk/table **neat and tidy**
15. Practice **past exam papers** and learn what the **mark schemes** are looking for.

Notes

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Notes