[](https://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwj3kPO19avJAhXInBoKHQkgCAkQjRwIBw&url=https://zoneoutzombie.wordpress.com/2014/05/&bvm=bv.108194040,d.d2s&psig=AFQjCNEE1zZu47Xa25HWwEDYPjXkIrFwcg&ust=1448552650324617)[](http://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwiAkaTi9avJAhWC5RoKHaLuD0cQjRwIBw&url=http://www.freepik.com/free-photos-vectors/wayne-rooney&bvm=bv.108194040,d.d2s&psig=AFQjCNHBF5bacRB7Vi9A5SSKjL1o3btrNg&ust=1448552758128268)[](http://www.google.co.uk/imgres?imgurl=https://s-media-cache-ak0.pinimg.com/236x/18/3d/e4/183de42425b39f917b36f018f9a45d44.jpg&imgrefurl=https://www.pinterest.com/meeches28/netball/&h=330&w=236&tbnid=p6sVwR-ze-DXOM:&docid=-BrN6KFt73Z66M&ei=wNhVVuu6GIH_aLbyt8AC&tbm=isch&ved=0ahUKEwjrmvfU9qvJAhWBPxoKHTb5DSgQMwhDKBowGg)

**GCSE PE**

Name …………………………………………..

Tutor…………………………………………….

Teacher…….………………………………….

Revision Booklet – Paper 1

**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

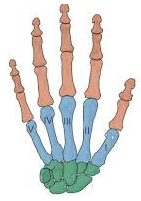
**How to use this booklet:**

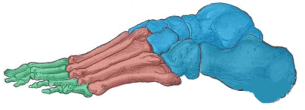
* You should use the sections in this booklet to help you revise each section.
* This booklet contains space to make notes on the main points from each section of the specification, but by no means are any of the sections exhaustive.
* In addition to this booklet, you should make additional notes, do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

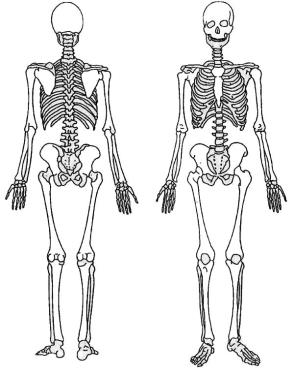
**The Skeletal System**

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

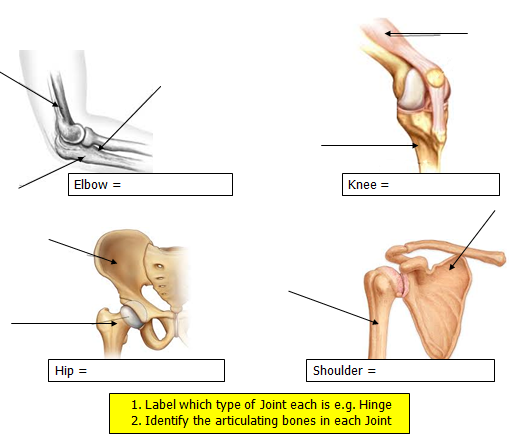
Can you label these bones?

****

****

[](http://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjck63448XNAhUmL8AKHQvLCb8QjRwIBw&url=http://freecoloringpages.co.uk/?q=leg%20skeleton&psig=AFQjCNEt7cisNl9wj5oJsbEtwNzuRCR5mQ&ust=1467033519407206)

Can you label these bones?



**Types of Joints**

**Synovial Joints**

Description of a ball and socket joint:

BALL & SOCKET JOINT:

Example of one in use:

Examples of ball and Socket joints:

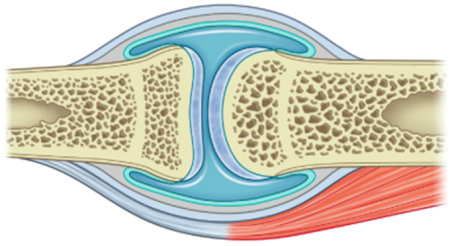
Description of a hinge joint:

HINGE JOINT:

Example of one in use:

Examples of hinge 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:**

|  |  |  |
| --- | --- | --- |
|  | **Structure** | **Role/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:

**ADDUCTION**

Description

Practical Example:

**EXTENSION**

Description

Practical Example:

**ABDUCTION**

Description

Practical Example:

**CIRCUMDUCTION**

Description

Practical Example:

**ROTATION**

Description

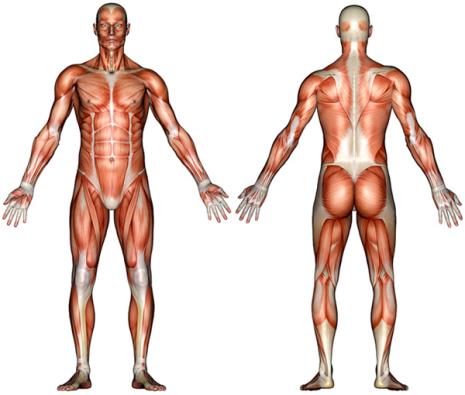
Practical Example:

**FLEXION**

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** |  |  |

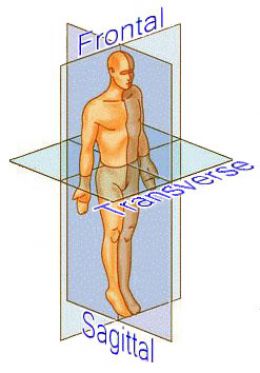
*TIP: Remember 1,2,3…FLE (this tells you which element is in the middle of the lever e.g. 1st class lever the fulcrum is in the middle)*

What is the formula for Mechanical Advantage?

**Planes of Movement**

|  |  |  |  |
| --- | --- | --- | --- |
| **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.



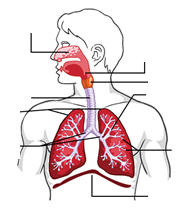
An **Axis of rotation** is a straight line which an object rotates.

The movement at a joint takes place in a plane about an axis.

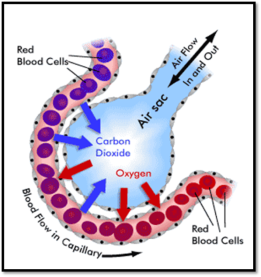
*TIP: Link the plane of movement and axis of rotation. Then think of multiple examples for the exam.*

**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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

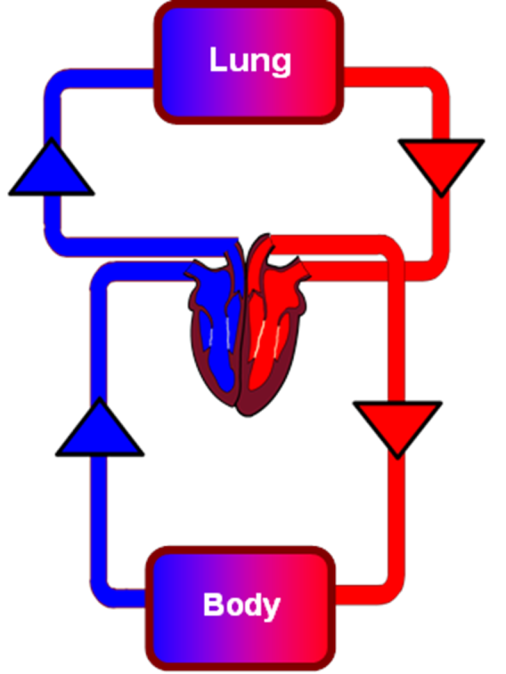
**Equation for Minute Ventilation**

**VE =**

*This is measured in LITRES per minute!*

**Cardiovascular System**

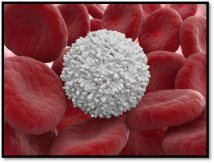
Label the diagram of the double circulatory system

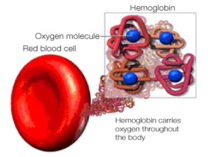
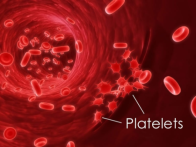


* **Can you add in the 4 Valves of the Heart?**

|  |  |  |
| --- | --- | --- |
| **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).

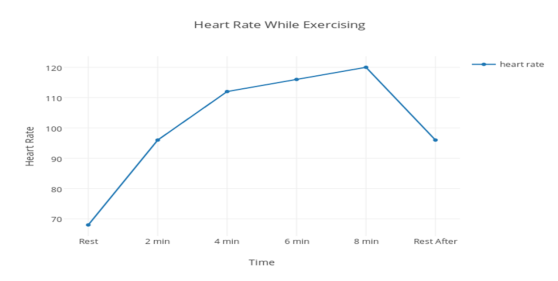
HRmax = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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**

**R**

**E**

**S**

**P**

**I**

**R**

**A**

**T**

**O**

**R**

**Y**

**C**

**A**

**R**

**D**

**I**

**O**

**V**

**A**

**S**

**C**

**U**

**L**

**A**

**R**

**M**

**U**

**S**

**C**

**U**

**L**

**A**

**R**

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

**Components of Fitness**

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

**Components of Fitness continued…**

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Definition

Practical Example

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

Contribution to healthy balanced lifestyle

**Describe up to two fitness tests for the following components of fitness**

Test 1

Test2

**Cardio Vascular Endurance**

Test2

Test 1

**Muscular Strength**

Test 1

**Speed**

Test 1

**Flexibility**

Test 2

Test 1

**Muscular Endurance**

Test 1

**Balance**

**Coordination**

Test 1

Test 1

**Agility**

Test 1

**Reaction Time**

Test 2

Test 1

**Power**

**Principle of Training**

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

**Types of Training**

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

**WEIGHT**

**FARTLEK**

**HIIT**

**PLYOMETRICS**

**CIRCUIT**

**INVERVAL**

**Continuous**

**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**

**TIP**: Make your examples specific to a certain activity! i.e. Using ropes when rock climbing to prevent falling from height.

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**

**Notes**

**Notes**

**Notes**

**Notes**