

## GCSE PE

### Component 1 – Fitness & Body Systems - Revision Booklet

Name:

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For all questions that are worth more than one mark you need to make sure that you give an answer that gives a **concluding statement**. This could be as short as a few words and may well begin with **'therefore'**.

Some possible **concluding statements** are given below:

Therefore the sprinter will complete the race in a quicker time

Therefore the athlete can throw the javelin further

As a result the runner will be able to work for a longer period of time

Therefore the rower will be able to move at a quicker rate

Therefore stroke volume must increase to supply the muscles with more oxygen

Therefore muscular strength is not important for the long distance runner

Therefore the rugby player is less likely to miss matches through injury

Therefore the rower will move quicker through the water with less effort

Answer the questions below, choosing a statement from those given above to help you finish your answer:

Why is the skeletal function of 'white blood cell production' important for a rugby player? **(3 marks)**

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Analyse, using one example, how one of the hinge joints in the body allows an athlete to throw the javelin. **(3 marks)**

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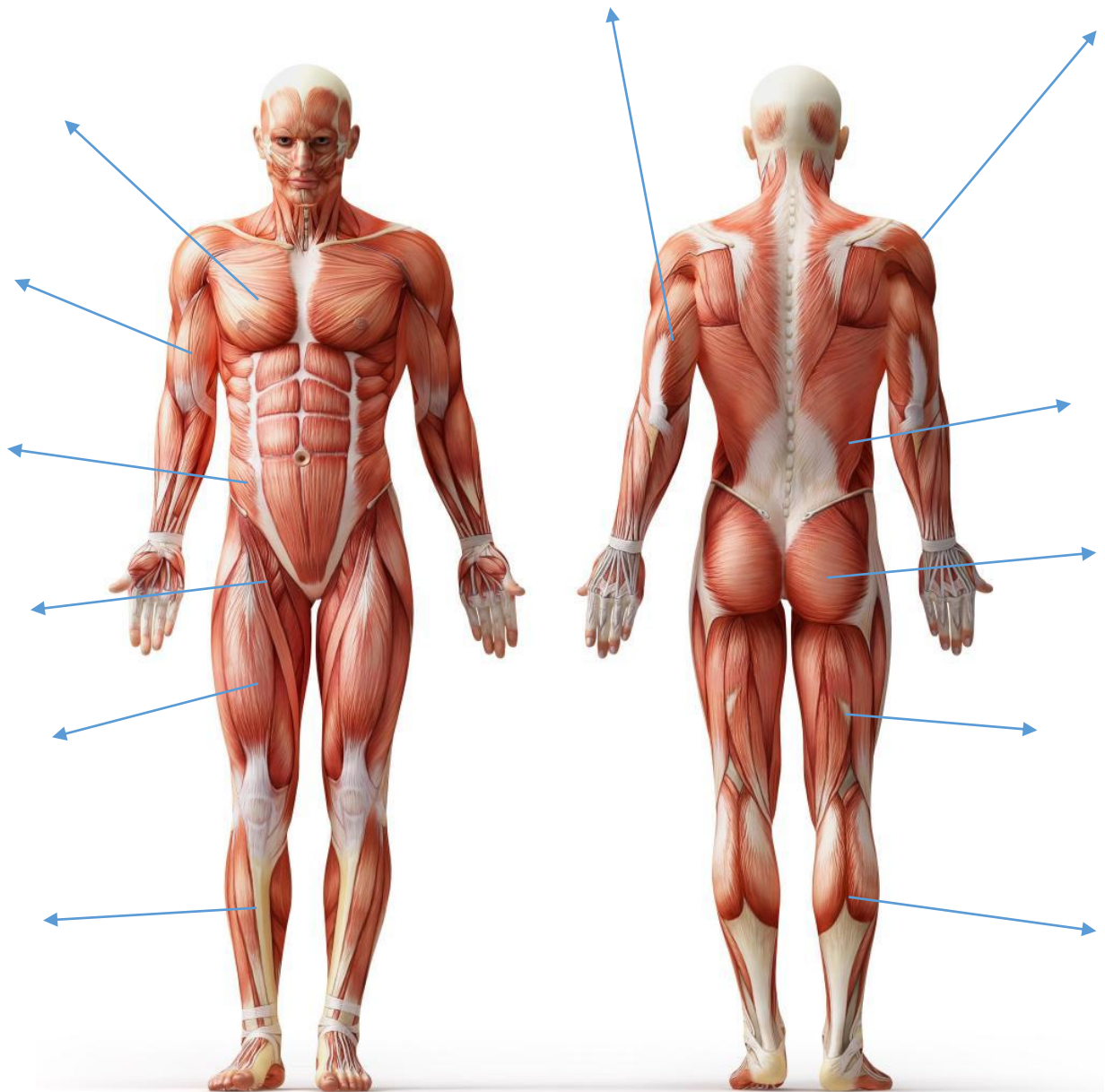
Explain why stroke volume increases when we start to exercise? **(3 marks)**

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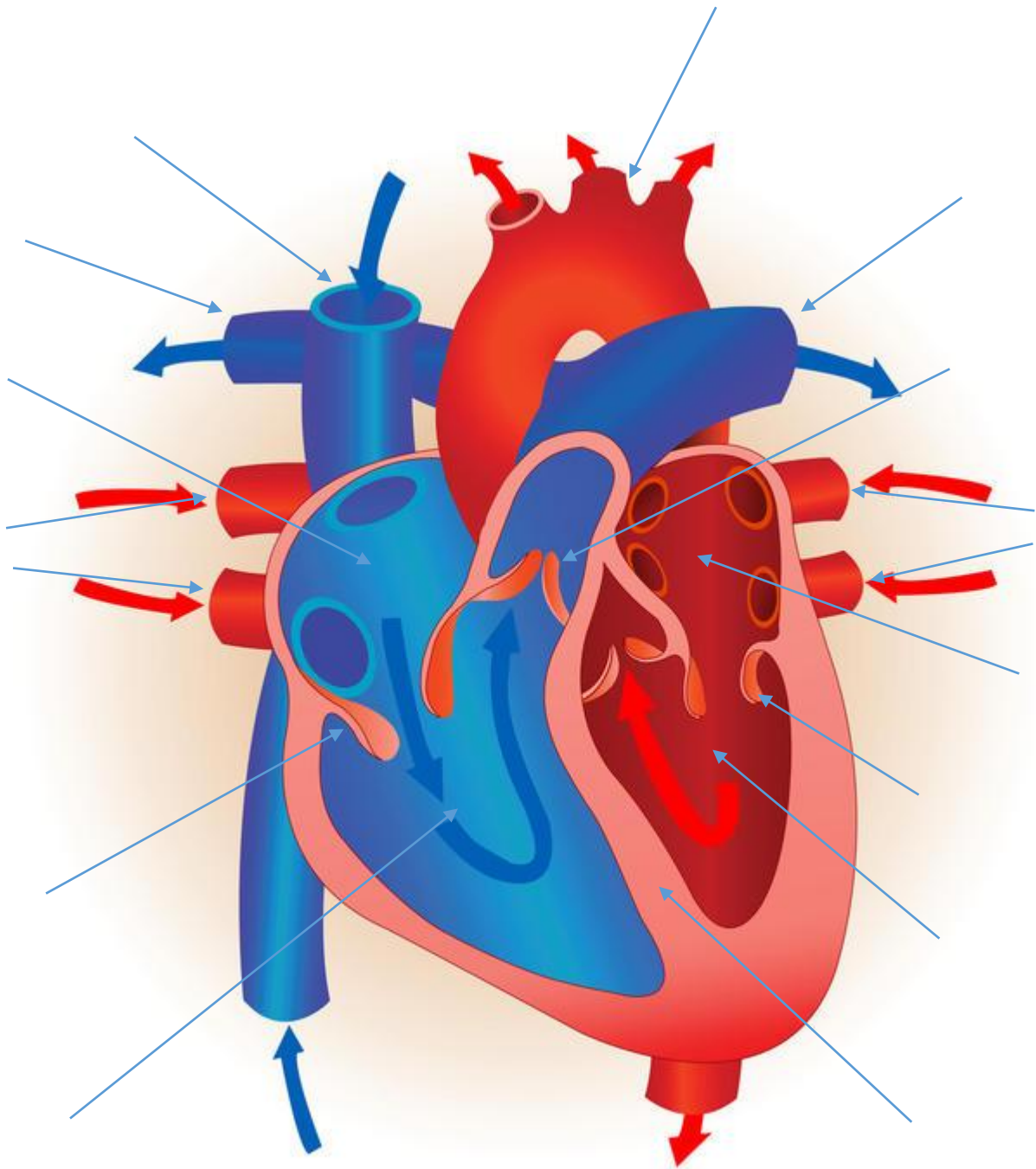


Name the antagonistic pairs which work together during movement:

<b>Exercise</b>	<b>Movement Action</b>	<b>Joint</b>	<b>Joint Type</b>	<b>Agonist Muscle</b>	<b>Antagonist Muscle</b>
Bicep Curl					
Tricep Dip					
Kicking a football					
Kicking a football					
Calf Raise					
Bowling (cricket)					
Hula Hooping					
Sit Up					
Cable Flys					
Lateral Raise					
Frontal Raise					
Pull Up					

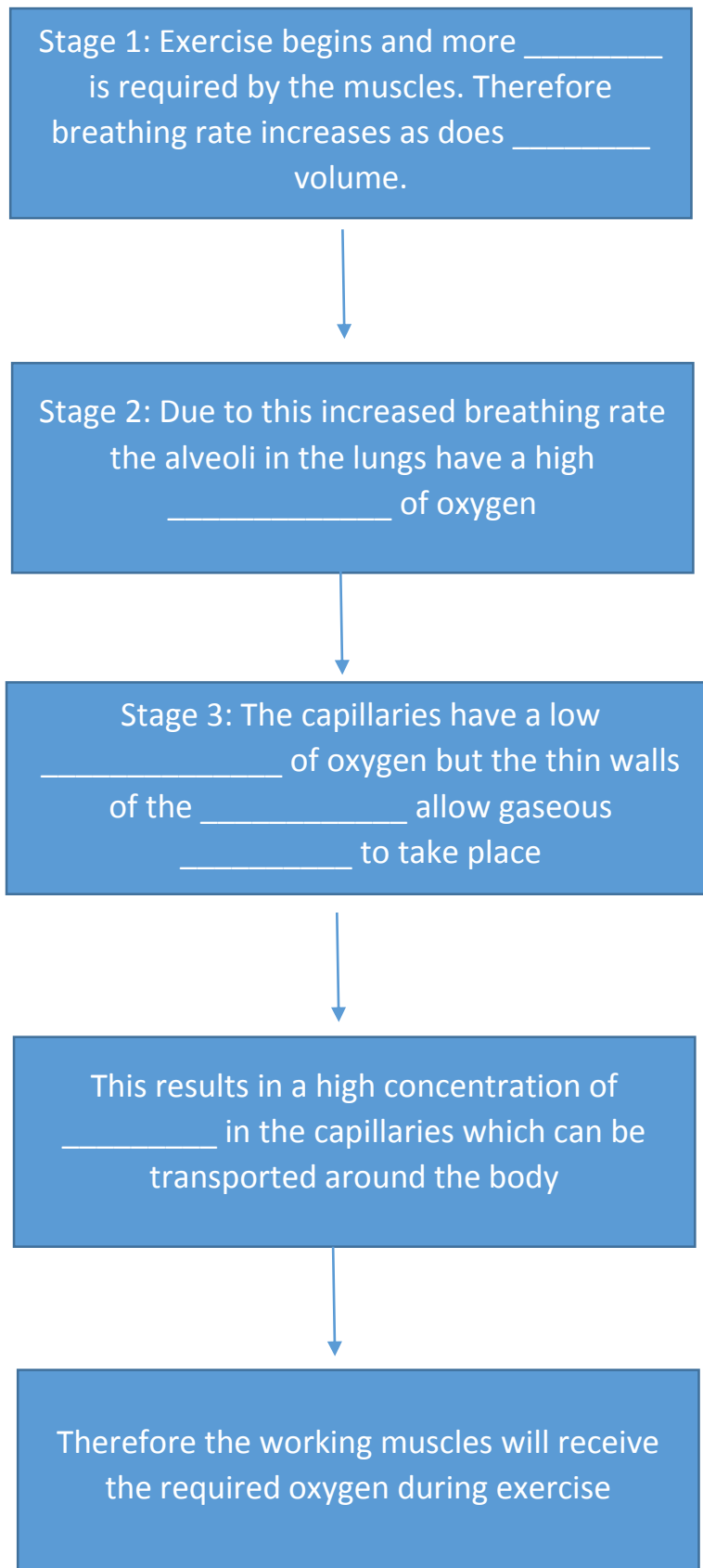
Extension Activity – Add your own exercises into the available space

**The Heart:**



## Alveoli/Capillaries

The alveoli and the capillaries work together to provide the body with oxygen during exercise.



## Fast and Slow Twitch Muscle Fibres

All muscles are made up of individual **fibres**, each containing myofibrils, which are small strands which work together to make your muscles contract.

Muscle fibres can either be **slow twitch (type I)** or **fast twitch (type II and type II X)**.

Hint:

Make sure you remember which is type I, type II and type IIX

Athletes with **slow twitch** fibres tend to do better in endurance events such as \_\_\_\_\_ and \_\_\_\_\_. This type of muscle fibre may contract slowly but it can work for long periods of time without rest.

Athletes with **fast twitch** fibres tend to do better in events that require a short burst of intense exercise such as \_\_\_\_\_ and \_\_\_\_\_.

Most muscles contain both **slow twitch** and **fast twitch** muscle fibres. Name 3 sports where it is important to have both slow twitch and fast twitch muscle fibres. Explain why.

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\_\_\_\_\_ twitch muscle fibres are darker in colour because they have a good oxygen supply and contain myoglobin (used to transport oxygen to muscles).

\_\_\_\_\_ twitch muscle fibres are lighter in colour because they contain less oxygen.





Match the following headings to the correct definition:

- |                       |  |
|-----------------------|--|
| <b>Heart Rate</b>     | The amount of air inspired and expired with each normal breath                 |
| <b>Stroke Volume</b>  | The amount of times your heart beats per minute.                               |
| <b>Cardiac Output</b> | The greatest amount of air that can be made to pass into and out of the lungs. |
| <b>Vital Capacity</b> | The amount of blood that is ejected out of the heart per beat.                 |
| <b>Tidal Volume</b>   | The amount of blood ejected out of the heart per minute                        |

**Cardiac Output** = \_\_\_\_\_ X \_\_\_\_\_

**Data:**

**Quantitative Data** = Information about quantities that can be measured

**Qualitative Data** = Information about qualities, which is difficult to measure

Name 3 fitness tests which produce quantitative data:

\_\_\_\_\_

What are the benefits of using quantitative data?

\_\_\_\_\_

\_\_\_\_\_

Quantitative data allows for trends in scores from fitness tests to be looked at closely. If you took part in the following fitness tests every week, what would you expect the trend to be? **(2 marks for each)**

**Cooper Run:** \_\_\_\_\_

**Vertical Jump:** \_\_\_\_\_

**Sit Up Test:** \_\_\_\_\_

**Redistribution of blood flow**

What is the redistribution of blood flow called?

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What does the redistribution of blood flow mean and when does it occur?

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What is vasodilation and when does it occur?

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What is vasoconstriction and when does it occur?

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Vasodilation and vasoconstriction are important players within the redistribution of blood. Why?

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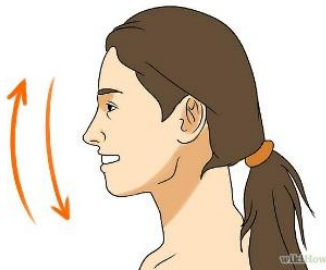
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Put a score out of 10 against the following parts of the body to show how much blood flow each will require during a marathon:

Stomach	Brain	Quadiceps	Hamstrings
Intestines	Biceps	Heart	Gastrocnemius

## Lever Systems – FLY LITTLE ELF

What type of lever system is being shown in the following images?



Class of lever	Advantage	Disadvantage
<b>First Class</b>	<b>Mechanical Advantage</b> – A large load can be lifted with relatively little effort, <b>due to the effort 'arm' being long</b>	Slower Movement Limited Flexibility
<b>Second Class</b>	<b>Mechanical Advantage</b> – A large load can be lifted with relatively little effort, <b>due to the effort 'arm' being long</b>	Slower Movement Limited Flexibility
<b>Third Class</b>	Fast Movement Large Range of Motion	<b>Mechanical Disadvantage</b> – Cannot lift as heavy a load with the same amount of effort, <b>due to the effort 'arm' being short</b>

### Hints & Tips:

- A phrase that you may see as part of some questions is '**Using one example**' – If you are asked to use an example, make sure you give one!
- In your exam you **are allowed to use a calculator**. Make sure you have a calculator with you so that you can use it to work out percentages and training thresholds
- Think carefully about **how many marks** the question is worth. Have you explained your point(s) sufficiently to gain all of the marks
- Always relate your answers to the sporting example or athlete that is given
- Always use an introduction and a conclusion as part of your 9 mark answer