

# **Energy Systems Information Sheet**

## **1 Creatine Phosphate System or ATP system**

- *Immediate energy system.*
- *Anaerobic, does not use oxygen*
- *Uses creatine phosphate to create energy.*
- *Can only last for about 10 seconds.*
- *Limited supply of creatine phosphate and has to be resynthesized.*
- *Used in 100m, long jump, javelin, sprinting, jumping*

## **2 Lactic Acid system**

- *Anaerobic energy system- short term energy system. Does not use oxygen*
- *Here ATP is made by the partial breakdown of glucose and glycogen*
- *Involves anaerobic glycolysis (the breakdown of glucose or glycogen to produce ATP)*
- *Lactic acid is produced, causing stiffness and fatigue.*
- *Used in 400m race, 200m swim.*

## **3 Aerobic System**

- *Long term energy system.*
- *Uses oxygen.*
- *Breakdown of fatty acids to provide large amounts of ATP.*
- *Carbon dioxide and water are by products.*
- *Occurs in the mitochondria of cells- power stations responsible for converting food into energy.*
- *Slow system but is continuous.*
- *Used in marathon, triathlon.*

## Energy Systems- Transition work

Whenever we take part in exercise or just doing daily tasks, we use energy. Energy is provided by different means and this depends on the intensity and duration of the activity.

In today's lesson you will be finding out about the different energy systems the body uses.

### Task 1

- Watch the videos below on Anaerobic and Aerobic energy systems
- Anaerobic energy systems  
<https://www.youtube.com/watch?v=uCmNQQWlrc0&list=PL2H-dSxtUaJnn4PbFnYczGEDxNJ4v5PHM&index=2>
- Aerobic Energy system  
<https://www.youtube.com/watch?v=PQMJSme780&index=1&list=PL2H-dSxtUaJnn4PbFnYczGEDxNJ4v5PHM>

### Task 2

- Using the information from the videos and also the additional energy systems information sheet (this was attached on class charts), complete the table below.
- Watch the You tube clips in the second table and fill in the details

Energy system	Energy comes from where?	Brief details about the energy system	Sport that would use this energy system
ATP-PC (Alactic)			
Lactic Acid			
Aerobic Energy Sytem			

<u>You tube clip</u>	<u>Sport</u>	<u>Energy system used</u>	<u>Explanation</u>
<a href="#">Thai weightlifter sets Olympic Record in Women's 58kg Weightlifting</a>			
<a href="#">USA wins a second gold in Women's Water Polo</a>			

<a href="#">Eliud Kipchoge wins Men's Marathon gold</a>			
<a href="#">Usain Bolt Vs Justin Gatlin Rio 2016</a>			

**Task 3....Question.....**

As part of his charity, Mo Farah has challenged the world 100m champion, Usain Bolt to race over a distance that would not suit either runner. Mo Farah is the current Olympic champion over 5000 and 10,000m, whilst Usain Bolt is the Olympic champion over 100 and 200m. Farah has suggested that they race between 600-800m.

- Do you agree with this distance? Explain. Select an optimum distance that would be fair to both athletes.
- Why do you think that one athlete is better suited to one distance than another distance?

**Task 4**

Summer work....

On class charts you will find a word document attached. This has a **6 mark question** on joints and joint movement. The question has a mark grid and also a structure frame. You need to use the structure frame to write your answer. Once you have completed this you need to upload the question to class charts and I will mark it.

Many thanks and see you soon!

# Unit 1

## Part A: Skeletal System

### Question 3

Analyse the importance of the various types of freely movable joints when taking part in a game of basketball? (6 marks)

Key Words
<ul style="list-style-type: none"><li>• Synovial joints</li><li>• Hinge</li><li>• Ball &amp; socket</li><li>• Condyloid</li><li>• Gliding</li><li>• Pivot</li><li>• Saddle</li></ul>



Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes. Level Mark Descriptor

Level	Mark	Descriptor
Level 0	0	No rewardable material
Level 1	1-2	<ul style="list-style-type: none"><li>• Demonstrates isolated elements of Knowledge and Understanding</li><li>• Breaks the situation down into component parts and a few of the points made will be relevant to the context in the question</li><li>• Limited analysis which contains generic assertions rather than interrelationships or linkages</li></ul>
Level 2	3-4	<ul style="list-style-type: none"><li>• Demonstrates some accurate Knowledge and Understanding</li><li>• Breaks the situation down into component parts and some of the points made will be relevant to the context in the question</li><li>• Displays a partially developed analysis which considers some interrelationships or linkages but not always sustained</li></ul>
Level 3	5-6	<ul style="list-style-type: none"><li>• Demonstrates mostly accurate Knowledge and Understanding</li><li>• Breaks the situation down into component parts and most of the points made will be relevant to the context in the question</li><li>• Displays a developed and logical analysis which clearly considers interrelationships or linkages in a sustained manner</li></ul>

## **Introduction**

Name the different types of joint and explain how freely moveable joints are important to basketball

What is another name for a freely movable joint? (L1)

### **Point 1**

Name a freely movable joint (L1)

Describe where it is found in the body (L1/2)

Explain why it is important to basketball giving a specific example? (L3)

### **Point 2**

Name another freely movable joint (L1)

Describe where it is found in the body (L1/2)

Explain why it is important to basketball giving a specific example? (L3)

### **Point 3**

Name another freely movable joint (L1)

Describe where it is found in the body (L1/2)

Explain why it is important to basketball giving a specific example? (L3)



## Unit 2; Fitness training and Programming for Health, sport and well being

Use Onenote to access all components for this Unit (2), if you have not completed any section in G Hill file you will need to do this ready for September.

I have also added one more section on sedentary lifestyles, this also incorporates sleep and stress. You need to research all three and present key information on each. (Table, mind map, poster)

How do they affect your health?

How do they effect performance?