

1. A summer learning activity/task

One aspect of A level PE that you will study in the first term is movement analysis

Movement analysis involves an understanding of the skeletal and muscular system and how they work together to provide movement in sport. For example, the movement analysis involved in kicking a football or tennis serve.

You will be required to answer a movement analysis question in your exam. This question will require the following information....

Task 1: Joint Types and Articulating Bones

To allow you to gradually build up your knowledge there are **four tasks** that build on one another. Whilst there is repetition between tasks, this is deliberate and aims to reinforce some learning through repetition.

For task 1, you have to identify the **synovial joint type** and **articulating bones** in a series of common joints found in the body.

Key Terms

A **synovial joint** is a joint that allows a wide range of movement and which is composed of two or more bones which exist in a joint capsule.

Articulating bones are bones that move against one another within a joint.

Complete the table below

Joint	Joint type	Articulating bones
Elbow		
Knee		
Ankle		
Shoulder		
Hip		
Wrist		



Notre Dame

CATHOLIC SIXTH FORM COLLEGE

Task 2: Adding joint movements

There are a series of possible movements that can occur at joints. These vary from joint to joint based on the **type** of joint, the **shape** of the joint and the **connective tissues around the joint** (ligaments, tendons & muscles). The most common joint movements are identified below.

Define each joint movement.

Joint movement	Definition
Flexion	
Extension	
Abduction	
Adduction	
Dorsiflexion	
Plantar flexion	
Rotation	
Horizontal abduction	
Horizontal adduction	



Notre Dame

CATHOLIC SIXTH FORM COLLEGE

Now add possible joint movements (**only from the above list**) to the table below. The number of spaces in the final column indicates the number of joint movements possible at the named joint.

Joint	Joint type	Articulating bones	Joint movements	
Elbow				
Knee				
Ankle				
Shoulder			1.	5.
			2.	6
			3.	7.
			4.	
Hip			1.	4.
			2.	4.
			3.	
Wrist				



Notre Dame

CATHOLIC SIXTH FORM COLLEGE

Task 3: This involves adding the agonist muscle (Print this task after completing)

The first two sections that you have completed will give you an insight into A level PE and you will use that knowledge to complete tasks 3 and 4

Student name: _____

Complete the table below by finding the **agonist** muscle. The muscle that causes the joint movement

Joint	Joint type	Articulating bones	Joint movement	Agonist muscle(s)
Elbow				
Knee				
Ankle				
Shoulder				
			Horizontal adduction	
Hip			Rotation	Subscapularis/infraspinatus
			Rotation	Gluteus medius/ Gluteus maximus
Wrist				

Task 4: Applying theory to practice (Print this task after completing)



Notre Dame

CATHOLIC SIXTH FORM COLLEGE

Well done if you have got this far! The final task involves taking what you have learnt and applying it to a series of sporting pictures to test your application of knowledge.

Example: in the upward phase of a bench press the table would be as below:-



Upward phase of bench press

Joint	Joint Type	Articulating bones	Joint movement	Agonist	Muscle contraction type
Elbow	Hinge	Humerus, radius & ulna	Extension	Triceps brachii	Concentric
Shoulder	Ball & socket	Scapula and humerus	Horizontal adduction	Pectoralis major & anterior deltoid	Concentric

The Vertical Jump. Complete the box below based on what is shown in the picture



Joint	Ankle	Knee	Hip
Joint type			
Articulating bones			
Joint movement			
Agonist			
Muscle contraction type			



Notre Dame

CATHOLIC SIXTH FORM COLLEGE

Biceps Curl- Upward phase. (Picture B) Complete the box below based on what is shown in the picture



Joint	Joint type	Articulating bones	Joint movement	Agonist	Muscle contraction type

Well done on completing the summer work