**A-LEVEL PHYSICAL EDUCATION**





**YEAR 11 TRANSITION**

**PROJECT**

**WELCOME TO A-LEVEL P.E. (Anatomy & Physiology)**

**TASK 1**

**As part of the Applied anatomy and physiology work, you are required to gain a detailed understanding of the skeletal and muscular systems.**

**On an A3 piece of paper design a factual poster of two major joints in the body. You should choose a joint from the upper body (shoulder, elbow or wrist) and a joint from the lower body (hip, knee or ankle).**

**Your poster, must include:**

* **An anatomical diagram of each joint.**
* **What type of joint it is ( e.g. hinge etc).**
* **The bones that articulate at the joint.**
* **The muscles that are involved at the joint.**
* **The movements that can take place at the joint (e.g. flexion etc).**
* **Explanation of the function of the components of a synovial joints (to include – ligaments, tendons, cartilage, synovial fluid, bursa and joint capsule).**
* **Give detailed practical examples of when the joint is used during sporting actions.**

**You can present your poster in any way that you would like. Make sure that your information is correct. You can include diagrams.**

**You will then be required to present this information during a lesson. Go to the OCR A-Level PE website. Then click on planning and teaching resources.** There is also a very useful power point on the skeletal and muscular systems that would will help you. You will find it in the **Topic exploration packs.**

**TASK 2**

One part of applying the theory to a sporting performance, requires you to produce a movement analysis.

* For **ONE skill from your main sport** (e.g. shooting technique in netball, tennis serve technique or track start off the blocks in swimming etc), you need to identify the **movement phases of the skill, e.g. the preparation, execution, recovery.** Pictures of the phases will help you!!
* **What you need to do for each phase? To identify …**
1. The movements that have taken place at each of the major joints e.g. flexion. There are some new movements that you haven’t come across before that you will need to research (they are horizontal flexion and extension at the shoulder, dorsi-flexion and plantar flexion at the ankle, medial and lateral rotation at the shoulder and hip joints)!!
2. The agonist muscle.
3. The antagonist muscle.
4. The joint type e.g. ball & socket.
5. The bones that articulate at the joint.
6. The type of muscle contraction taking place (concentric, eccentric or isometric).

REMEMBER that more than one movement pattern may take place at each joint.

**Use the tables to help you**

**SKILL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

IMAGE OF PREPARATION PHASE

IMAGE OF EXECUTION PHASE

IMAGE OF RECOVERY PHASE

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **JOINT** | **JOINT TYPE** | **BONES AT JOINT** | **MOVEMENT** | **AGONIST** | **ANTAGONIST** | **TYPE OF CONTRACTION** |
| Left Wrist |  |  |  |  |  |  |
| Right Wrist |  |  |  |  |
| Left Elbow |  |  |  |  |  |  |
| Right Elbow |  |  |  |  |
| Left Shoulder |  |  |  |  |  |  |
| Right Shoulder |  |  |  |  |
| Left Hip |  |  |  |  |  |  |
| Right Hip |  |  |  |  |
| Left Knee |  |  |  |  |  |  |
| Right Knee |  |  |  |  |
| Left Ankle |  |  |  |  |  |  |
| Right Ankle |  |  |  |  |  |  |

**SKILL \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PHASE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **JOINT** | **JOINT TYPE** | **BONES AT JOINT** | **MOVEMENT** | **AGONIST** | **ANTAGONIST** | **TYPE OF CONTRACTION** |
| Left Wrist |  |  |  |  |  |  |
| Right Wrist |  |  |  |  |
| Left Elbow |  |  |  |  |  |  |
| Right Elbow |  |  |  |  |
| Left Shoulder |  |  |  |  |  |  |
| Right Shoulder |  |  |  |  |
| Left Hip |  |  |  |  |  |  |
| Right Hip |  |  |  |  |
| Left Knee |  |  |  |  |  |  |
| Right Knee |  |  |  |  |
| Left Ankle |  |  |  |  |  |  |
| Right Ankle |  |  |  |  |  |  |

**SKILL \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PHASE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **JOINT** | **JOINT TYPE** | **BONES AT JOINT** | **MOVEMENT** | **AGONIST** | **ANTAGONIST** | **TYPE OF CONTRACTION** |
| Left Wrist |  |  |  |  |  |  |
| Right Wrist |  |  |  |  |
| Left Elbow |  |  |  |  |  |  |
| Right Elbow |  |  |  |  |
| Left Shoulder |  |  |  |  |  |  |
| Right Shoulder |  |  |  |  |
| Left Hip |  |  |  |  |  |  |
| Right Hip |  |  |  |  |
| Left Knee |  |  |  |  |  |  |
| Right Knee |  |  |  |  |
| Left Ankle |  |  |  |  |  |  |
| Right Ankle |  |  |  |  |  |  |

**SKILL \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PHASE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**MOVEMENT ANALYSIS HELP TABLE**

|  |  |  |  |
| --- | --- | --- | --- |
| **JOINT** | **JOINT MOVEMENT** | **AGONIST MUSCLE****(Concentric Muscle Contraction)** | **ANTAGONIST MUSCLE****(Eccentric Muscle Contraction)** |
| WRIST | FLEXION | WRIST FLEXORS | WRIST EXTENSORS |
| EXTENSION | WRIST EXTENSORS | WRIST FLEXORS |
| ELBOW | FLEXION | BICEPS BRACHII | TRICEPS BRACHII |
| EXTENSION | TRICEPS BRACHII | BICEPS BRACHII |
| SHOULDER  | FLEXION | ANTERIOR DELTOID | POSTERIOR DELTOID |
| EXTENSION | POSTERIOR DELTOID | ANTERIOR DELTOID |
| HORIZONTAL FLEXION | PECTORALIS MAJOR | POSTERIOR DELTOID/TERES MINOR |
| HORIZONAL EXTENSION | POSTERIOR DELTOID/TERES MINOR | PECTORALIS MAJOR |
| ABDUCTION | MIDDLE DELTOID | LATISSIMUS DORSI |
| ADDUCTION | LATISSIMUS DORSI | MIDDLE DELTOID |
| MEDIAL ROTATION | SUBSCAPULARIS & TERES MAJOR | INFRASPINATUS & TERES MINOR |
| LATERAL ROTATION | INFRASPINATUS & TERES MINOR | SUBSCAPULARIS & TERES MAJOR |



**TASK 3**

**Complete the glossary table below – go to the OCR A-Level PE website. Then click on planning and teaching resources, click on teacher guides and open the glossary of terms to help you.**

<https://www.ocr.org.uk/qualifications/as-and-a-level/physical-education-h155-h555-from-2016/planning-and-teaching/>

|  |  |
| --- | --- |
| **Abduction** |  |
| **Adduction** |  |
| **Agonist** |  |
| **Antagonist** |  |
| **Antagonistic muscle action** |  |
| **Concentric contraction** |  |
| **Dorsi-flexion** |  |
| **Eccentric contraction** |  |
| **Fast glycolytic muscle fibres** |  |
| **Extension** |  |
| **Fixator** |  |
| **Flexion** |  |
| **Horizontal extension** |  |
| **Horizontal flexion** |  |
| **Isometric contraction** |  |
| **Joint** |  |
| **Plantar flexion** |  |
| **Rotation** |  |
| **Slow oxidative muscle fibres** |  |
| **Tendon** |  |