**OCR-set Assignment**

**Sample Assessment Material**

OCR Level 1/Level 2 Cambridge National in Sport Science Sample Set-Assignment

Unit R182: The body’s response to physical activity and how technology informs this

This is a sample OCR-set assignment which should only be used for practice. This assignment **must not** be used for live assessment of students.

The live assignments will be available on our secure website, ‘Teach Cambridge'.

**The OCR administrative codes associated with this unit are:**

* unit entry code R182
* certification code J828

**The regulated qualification number associated with this unit is:**

603/7106/7

**Duration: Approximately 8 - 10 hours**

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# **Information for Teachers Using this Assignment**

You **must**:

* Make sure you are familiar with the Assessment Guidance relating to the tasks. This is with the unit content in Section 4 of the [Specification](https://www.ocr.org.uk/Images/610952-specification-cambridge-nationals-sport-science-j828.pdf).
* Make sure that you have read and understood **all** the rules and guidance provided in Section 6 of the [Specification](https://www.ocr.org.uk/Images/610952-specification-cambridge-nationals-sport-science-j828.pdf) **before** your students complete and you assess the set assignments.
* Make sure that completion and assessment fully adhere to the rules and guidance provided in Section 6 of the [Specification](https://www.ocr.org.uk/Images/610952-specification-cambridge-nationals-sport-science-j828.pdf).
* Provide students with the [Student guide to NEA assignments](https://www.ocr.org.uk/Images/620514-student-guide-to-nea-assignments.pdf) before they start the assignments.
* Allow students approximately 8 - 10 guided learning hours (GLH) to complete all tasks.

You **must not**:

* Change or modify this assignment in any way.

## Scenario for the assignment

The body’s response to physical activity and how technology informs this

As part of your work with a local club you are going to assist the lead coach in delivering sessions to a variety of club members. In your preparations to assist them you need to develop your knowledge of how your cardio-respiratory and musculo-skeletal systems respond and adapt during short and   
long-term activity participation.

For this Scenario select from the following Training and Sport Activities, in the table below:

|  |  |
| --- | --- |
| **Training Activities**  **Relevant to Activities 1 and 3** | **Sports Activity**  **Relevant to Tasks 1, 2 and 3** |
| Select a 15 minute continuous aerobic training activity, examples below:   * Steady state running exercise of their choice * 15 mins on a treadmill * 15 mins on exercise bike * Basic body weight circuit training session – (1 minute’s repetitions of - Press Ups, Lunges, Tricep Dips, Squats, Star Jumps, Sit ups, Crunches, Alternate leg and arm raisers). | Select a Sports activity from the list below:   * Athletics – Sprinting, Jumping * Futsal * Roller Hockey |

You have also been asked to look into the technology that is available to you as both a performer and to assist the lead coach. This will help to monitor both your cardio-respiratory and musculo-skeletal systems and inform how your performance can be improved.

**Read through all of the tasks carefully, so that you know what you will need to do to complete this assignment.**

**Important:**

* You will need to refer to the marking criteria grid. Your teacher can explain the marking criteria if you need further clarification.
* You will need to draw upon relevant skills/knowledge/understanding from other units you have studied in this qualification.
* No templates have been provided for you to use; your teacher **should not** provide you with anything to complete. You are expected to structure your work for the other parts of this assignment yourself.

## Your Tasks and Marking Grids

### Task 1 – Short-term effects of exercise on the cardio-respiratory and musculo-skeletal systems

Topic Areas 1, 2 and 3 are assessed in this task.

The coach has asked you to look at short-term effects of exercise. They want to know what responses are occurring and how these will affect your performance in your selected sport from the list given in the scenario.

Your task is to carry out an initial investigation to identify the responses that occur during 15 minutes of aerobic exercise.

For your selected training activity, **you must**:

* Use techniques to gather data to show the short term effects to your cardio-respiratory and musculo-skeletal systems when you complete the training activities
* Describe **how** both your cardio-respiratory and musculo-skeletal systems respond to the training activities
* Explain **why** these responses are occurring in each system and what benefit it is to you as the performer when you are carrying out your sport activity.

The evidence for this task **must** be in the form of a written report.

Total marks for Task 1: 12 marks

**Task 1 Tips**

* Consider how the intensity varies in the different training activities
* Explain why the responses in the cardio-respiratory and musculo-skeletal systems are of benefit to you as a performer

**Topic Area 1: The cardio-respiratory system and how the use of technology supports different types of sports and their intensities**

**Topic Area 2: The musculo-skeletal system and how the use of technology supports different types of sports and their movements**

**Topic Area 3: Short-term effects of exercise on the cardio-respiratory and musculo-skeletal systems**

|  |  |  |
| --- | --- | --- |
| **MB1: 1-4 marks** | **MB2: 5-8 marks** | **MB3: 9-12 marks** |
| Gives a **basic** outline of thetechniques used to gather cardio-respiratory and musculo-skeletal systems data before and after completing their training activity. Supported with **limited** data.  **Briefly** outlines short-term responses of both the cardio-respiratory and musculo-skeletal systems to the training activity. Gives **limited** or no explanation of why these have occurred.  **Briefly** outlines what benefits these short-term responses could make to their performance in their selectedsport activity. | **Adequately** describes thetechniques used to gather cardio-respiratory and musculo-skeletal systems data before and after completing their training activity. Supported with an **adequate** rangeof datashowing **some** of the changing variables.  **Sound** links are made between the intensity of the training activities, and the short-term responses of both the cardio-respiratory and musculo-skeletal systems. Gives **some** explanation of why these have occurred.  **Adequately** explains what benefits these short-term responses could make to their performance in their selected sport activity. | **Comprehensively** describes thetechniques used to gather cardio-respiratory and musculo-skeletal systems data before and after completing their training activity. Supported with **a wide** **range** of data **clearly** showing **all** the changing variables.  **Complex** links are made between the intensity of the training activities, and the short-term responses of both the cardio-respiratory and musculo-skeletal systems. **Comprehensively** discusses why these have occurred.  **Clearly** explains what benefits these short-term responses could make to their performance in their selected sport activity. |

If your work does not meet Mark Band 1 criteria, you will be awarded zero marks for this task.

### Task 2 – Long-term effects of exercise on the cardio-respiratory and musculo-skeletal systems

Topic Areas 1, 2, and 4 are assessed in this task

The coach has asked you to look into the long-term effects of participation in your selected sporting activity from the list given in the scenario. What happens to your cardio-respiratory and   
musculo-skeletal systems? Looking into this can ensure that your training sessions are effective for long-term participation.

Your task is to carry out research to explain the adaptations to both the cardio-respiratory and the musculo-skeletal systems during long-term participation in your selected sport activity. You should consider how long-term participation in your selected sport activity can have benefits and drawbacks for your cardio-respiratory and musculo-skeletal systems.

For your selected activity, **you must**:

* Gather information about the adaptations that will occur in both your cardio-respiratory and musculo-skeletal systems as a result of long-term participation
* Explain why these adaptations will occur in both your cardio-respiratory and musculo-skeletal system over a long period of time
* Discuss the benefits and drawbacks of adaptations that can occur with long-term participation.

The evidence for this task **must be** in the form of a written report.

Total marks for Task 2: 12 marks

**Task 2 Tips**

* Consider the impact of long-term exercise on both systems and whether these are benefits or drawbacks to you for long-term participation in your selected activity
* activities can be short high intensity activities such as short distance cycle or swimming sprints, long duration games like football or rugby, strength activities such as gymnastics. You may also include any data / case study of a performer to support your explanation of the adaptations to both systems, the benefits, and drawbacks to you as the performer.

**Topic Area 1: The cardio-respiratory system and how the use of technology supports different types of sports and their intensities**

**Topic Area 2: The musculo-skeletal system and how the use of technology supports different types of sports and their movements**

**Topic Area 4: Long-term effects of exercise on the cardio-respiratory and musculo-skeletal systems**

|  |  |  |
| --- | --- | --- |
| **MB1: 1-4 marks** | **MB2: 5-8 marks** | **MB3: 9-12 marks** |
| The long-term effects of exercise on the  cardio-respiratory and musculo-skeletal systems are **briefly** described and are supported with **basic** examples from their selected sport activity.  Outlines **few** adaptations and makes **basic** suggestions as to why they have occurred, using **limited** examples from their selected sport activity.  **Limited** discussion of the long-term benefits and/or drawbacks to them in their selected sport activity. | The long-term effects of exercise on the  cardio-respiratory and musculo-skeletal systems are **adequately** discussed and supported with a **range** of examples from their selected sport activity.  Describes **some** adaptations and provides **some** explanation as to why they have occurred, using a **range** of examples from their selected sport activity.  **Adequately** discussesthe long-term benefits and drawbacks to them as a performer, using a **range** of examples from their selected sport activity. | The long-term effects of exercise on the  cardio-respiratory and musculo-skeletal systems are **comprehensively** discussed and supported with a **wide range** of well-developed examples from their selected sport activity.  Describes **in detail** adaptations and provides **clear** explanations why they have occurred, using a **wide range** of **well-developed** examples from their selected sport activity.  Discusses in **detail** the long-term benefits and drawbacks of the adaptations to them as a performer, using a **wide range** of examples from their selected sport activity. |

If your work does not meet Mark Band 1 criteria, you will be awarded zero marks for this task.

### Task 3 – Technology and the cardio-respiratory and musculo-skeletal systems

Topic Areas 1 and 2 are assessed in this task.

The coach has asked you to investigate the technology that is available to performers in your selected sport activity from the list given in the scenario, from beginners ~~t~~o the elite level. They are interested in how technology can help you as a performer and them as a coach, by giving data on the responses and adaptations that occur as you warm up and train. This data would then assist in understanding how effective your warm up and training are.

Your task is to research the different cardio-respiratory and musculo-skeletal sports technology that is available and identify those which you could use for your selected sport activity.

For your selected activity, **you must**:

* Research different technologies that are available to you for monitoring both your cardio-respiratory and musculo-skeletal systems
* For your cardio-respiratory and musculo-skeletal system:
  + Explain the information this technology provides to support you as a performer, and your coach, to indicate the effectiveness of your training activity
  + Explain the information this technology provides to support you as a performer, and your coach, to indicate the effectiveness of your long-term selected sport activity participation.
* Discuss the benefits and drawbacks of using this technology for maximising your long-term participation.

The evidence for this task **must be** in the form of a written report.

Total marks for Task 3: 16 marks

**Task 3 Tips**

* Ensure that reference is made to how your selected technology informs you as a performer, and how it informs your coach
* Explain how your selected technology can be used to maximise benefits and minimise the drawbacks to you as a performer in your selected activity, during short and   
  long-term participation
* You may also include any data / case study of another performer to support your explanation of the information to the benefits and drawbacks of the technology.

**Topic Area 1: The cardio-respiratory system and how the use of technology supports different types of sports and their intensities**

|  |  |  |
| --- | --- | --- |
| **MB1: 1-3 marks** | **MB2: 4-7 marks** | **MB3: 8-10 marks** |
| **Briefly** outlines a type of technology that provides them as a performer **or** their coach with information regarding the cardio-respiratory system during training and participation in their selected activity.  **Briefly** outlines how the technology can maximise benefits **and/or** minimise drawbacks for long-term participation in their selected activity. | **Adequately** describes a **range** of technology and the information it provides them as a performer **and/or** their coach with information regarding the cardio-respiratory system to support them during training and participation in their selected activity.  **Adequately** explains how the technology can maximise benefits **and** minimise drawbacks for long-term participation in their selected activity. | **Comprehensively** describes how a **wide range** of technology provides them as a performer **and** their coach with information regarding the cardio-respiratory system to support them during training and to maximise participation in their selected activity.  **Fully** explains how the technology can maximise benefits **and** minimise drawbacks for long-term participation in their selected activity. |

**Topic Area 2: The musculo-skeletal system and how the use of technology supports different types of sports and their movements**

|  |  |  |
| --- | --- | --- |
| **MB1: 1-2 marks** | **MB2: 3-4 marks** | **MB3: 5-6 marks** |
| **Briefly** outlines a type of technology that provides them as a performer **or** their coach with information regarding the musculo-skeletal system during training and participation in their selected activity.  **Briefly** outlines how the technology can maximise benefits **and/or** minimise drawbacks for long-term participation in their selected activity. | **Adequately** describes a **range** of technology and the information it provides them as a performer **and/or** their coach with information regarding the musculo-skeletal system to support them during training and participation in their selected activity.  **Adequately** explains how the technology can maximise benefits **and** minimise drawbacks for long-term participation in their selected activity. | **Comprehensively** describes how a **wide range** of technology provides them as a performer **and** their coach with information regarding the musculo-skeletal system to support them during training and to maximise participation in their selected activity.  **Fully** explains how the technology can maximise benefits **and** minimise drawbacks for long-term participation in their selected activity. |

If your work does not meet Mark Band 1 criteria, you will be awarded zero marks for this task.

## Marking Criteria Command Words

The tables below show the command words that will be used in the NEA Marking Criteria grids. They explain the type of evidence that you should expect to see to meet each command word.

**Mark Band (MB1) Words:**

|  |  |
| --- | --- |
| **Command word** | **Meaning** |
| **Basic** | * Work includes the minimum required. It is a starting point but is simplistic and not developed. * Understanding and skills are applied in a way that partly achieves the wanted or intended result, but it would not be useable without further input or work. |
| **Brief/Briefly** | * Work includes a small number of relevant facts or concepts but lacks detail, contextualisation or examples. |
| **Dependent** | * The student can perform a task when given regular assistance or help. |
| **Few** | * Work produced is restricted or narrow. It includes less than half of the information or examples expected for a full response. |
| **Hesitant(ly)** | * Slow, uncertain, reluctant. |
| **Inconsistent(ly)** | * A level of performance which varies in quality over time. |
| **Inefficient** | * Outputs are produced but with great expense or effort because of poor organisation or design and not making the best use of available resources. |
| **Limited** | * Work produced is restricted in range or scope and includes only some of the information required. It evidences partial rather than full understanding. * Work produced is a starting point rather than a developed process, concept or output. |
| **Minimal** | * Includes very little in amount or quantity required. |
| **Simple** | * Includes a small number of relevant parts, which are not related to each other. |
| **Superficial** | * Work completed lacks depth and detail. |

**Mark Band (MB2) Words:**

|  |  |
| --- | --- |
| **Command word** | **Meaning** |
| **Adequate(ly)** | * Work includes the appropriate number of relevant facts or concepts but does not include the full detail, contextualisation or examples. |
| **Assisted** | * The student can perform a task with occasional assistance or help. |
| **Part(ly)/Partial** | * To some extent but not completely. * Work produced is inclusive in range and scope. It evidences a mainly developed application of understanding, performance or output needed. * Work produced results in a process, concept or output that would be useable for its purpose. |
| **Some** | * Work produced is inclusive but not fully comprehensive. It includes over half the information or examples expected for a full response. |
| **Sound** | * Valid, logical, shows the student has secured most of the relevant understanding, but points or performance are not fully developed. * Applies understanding and skills to produce the wanted or intended result in a way that would be useable. |

**Mark Band (MB3) Words:**

|  |  |
| --- | --- |
| **Command word** | **Meaning** |
| **Accurate(ly)** | * Acting or performing with care and precision. * Correct in all details. |
| **All** | * Work produced is fully comprehensive and wide-ranging. It includes almost all, or all the information or examples expected for a full response. |
| **Clear(ly)** | * Focused and accurately expressed, without ambiguity. |
| **Complex** | * Includes many relevant parts, all of which relate to each other logically. |
| **Comprehensive(ly)** | * The work produced is complete and includes everything required to show depth and breadth of understanding. * Applies the understanding and skills needed to successfully produce the wanted or intended result in a way that would be fully fit-for-purpose. |
| **Confident(ly)** | * Showing certainty over the information presented. * Showing certainty in actions performed. |
| **Consistent(ly)** | * A level of performance which does not vary in quality over time. |
| **Critical** | * Objective analysis and evaluation in order to form: a judgement, evaluation of the evidence or effective trouble shooting/fault finding. |
| **Detailed** | * Gives point by point consideration of all the key information. |
| **Effective** | * Applies the skills required to the task and is successful in producing the desired or intended result. * The work produced is effective in relation to a brief. |
| **Efficient** | * Able to produce results or outputs with the minimum expense or effort, because of good organisation or design and making the best use of available resources. |
| **Full(y)** | * Work produced is comprehensive in range and scope. It evidences a fully developed application of understanding, performance or output needed. * Work produced results in a process, concept or output that would be fully fit-for-purpose. |
| **Independent(ly)** | * The student can perform a task without assistance or reliance on others. |
| **Justify/Justified** | * The reasons for doing something are explained in full. |
| **Most(ly)** | * Includes nearly all of what is expected to be included. |
| **Perceptive** | * Having or showing insight. |
| **Specific** | * Evidence is tightly focused on the individual or activity in question, rather than general or generic. |
| **Well developed** | * The student evidences skills that are mature and well-practised. * The student evidences knowledge or awareness that demonstrate solid underpinning understanding of the situation. |
| **Wide (ranging)** | * Includes many relevant details, examples or contexts; all of which are fully detailed, contextualised or exemplified. |