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|  | **EDEXCEL BTEC LEVEL 3 EXTENDED DIPLOMA IN**  **APPLIED SCIENCE (MEDICAL SCIENCE)** |
| **UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS**  **ASSIGNMENT 1 : THE DIGESTIVE SYSTEM**  **ASSESSOR:** Date Given: \_\_\_\_\_\_\_\_\_\_\_ Date Due: \_\_\_\_\_\_\_\_\_\_\_\_  **Criteria being assessed: LO1 & LO4: P2 , P5 , P6 , M1 , M4  D1** | |

**The learning outcomes for this unit are:**

|  |  |
| --- | --- |
| **LO1** | Know the levels of organisation within the human body |
| **LO2** | Be able to relate the structure of the circulatory system to its function in a multi-cellular organism |
| **LO3** | Be able to relate the structure of the respiratory system to its function |
| **LO4** | Be able to relate the structure of the digestive system to its function |
| **LO5** | Understand the immunological function of the lymphatic system |

***Criteria being assessed by this assignment:***

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|  | To achieve a **PASS** grade the evidence must show that the learner is able to: | To achieve a **MERIT** grade the evidence must **also** show that the learner is able to: | To achieve a **DISTINCTION** grade the evidence must **also** show that the learner is able to: |
| **LO1** | P2 Describe the four different tissue types | M1 Use diagrams or micrographs to compare and contrast the four tissue types | D1 Explain the relationship  between cells, tissues, organs and organ systems in the organisation of the human body |
| **LO4** | P5 Use appropriate chemical  tests to identify different  dietary nutrients  P6 Explain how these dietary  nutrients are processed through the digestive system | M4 Use chemical equations to  show how the main food  groups are dealt with in the digestive system |  |

**SCENARIO**

All cells require the same nutrients in order to survive and those nutrients are provided by the digestive system. It breaks down food into its constituent molecules and then absorbs them into the blood stream which carries it to all the cells of the body. As a biological researcher you need to understand how the digestive system works and how it combines with the other biological systems to keep the body supplied with nutrients. You need to present the information you discover in the form of a website.

**TASK 1**

Produce a web page describing the digestive system, include a diagram of the human digestive system with all the organs correctly identified. Students should also provide information on the function of each of the organs **Pass 6**

**TASK 2**

Produce a scientific write-up showing the identification of carbohydrates (glucose and starch), proteins and lipids in a number of foods. Include a method, your results and a short conclusion describing what your results show.

**Pass 5**

**TASK 3**

On your web page produce a table identifying the major food groups (protein, carbs, lipids, minerals, vitamins and water) and the function they serve in the human body. Finally write out the chemical equations for the digestion of the three major food groups.

**Merit 4**

**TASK 4**

Using a microscope, draw labelled diagrams of the four different tissue types using the microscope slides provided (scan these images and include them on your web page). Describe the structure of the 4 tissue types **Pass 2**

**TASK 5**

Write a detailed essay to explain the relationship between cells, tissues, organs and organ systems in the organisation of the human body, mainly using the digestive system as an example. It should include examples of what types of specialised cells are found in the digestive system, how they work together to form tissues and then organs; the stomach and the small intestine are good examples. Finally it should also include a description of how the organs work together to form the digestive system and an explanation of how different systems coordinate to keep the whole human body functioning. Use suitable diagrams to illustrate your essay. **Merit 1**

**Distinction 1**

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**UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS ASSIGNMENT 1: THE DIGESTIVE SYSTEM Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature (declaration)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date Due:** I confirm that the work presented for assessment is entirely my own. I have acknowledged resources / references where appropriate.

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| **Grading**  **Criteria** | **Evidence required:** | **Student Checklist** | **Achieved**  **Y / N** | **Assessor Comments** |
| **P2** | Diagrams of the 4 Tissue Types |  |  |  |
| **P5** | Write-up of the biochemical test for the different food groups |  |  |
| **P6** | Annotated diagram of the digestive system |  |  |
| **M1** | An essay detailing the organisation of tissues, organs and body systems |  |  |  |
| **M4** | A table detailing the function of the different nutrients |  |  |  |
| **D1** | An explanation of the organisation of tissues, organs and body systems |  |  |  |

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| **Resubmission authorisation\*** |  | **Resubmission Date:** |  |
| \* All resubmissions must be authorised. Only 1 resubmission is possible per assignment. | | | |
| **Assessor Signature** |  | **Date:** |  |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |
| **Additional Notes** |  |

**Comments on work resubmitted:**

Criteria achieved: **LO1 & LO4: P2 , P5 , P6 , M1 , M4  D1**

Assessor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IV Signature: Date:

Assessment Brief internally verified by\*: MT Date: 8/9/14 \*See IV File for appropriate documentation & records

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|  | **EDEXCEL BTEC LEVEL 3 EXTENDED DIPLOMA IN**  **APPLIED SCIENCE (MEDICAL SCIENCE)** |
| **UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS**  **ASSIGNMENT 2 : THE RESPIRATORY SYSTEM**  **ASSESSOR: Stuart Hutchinson** Date Given: \_\_\_\_\_\_\_\_\_ Date Due:\_\_\_\_\_\_\_\_\_\_  **Name:­­**  **Criteria being assessed: LO3: P4 , M3 ** | |

**The learning outcomes for this unit are:**

|  |  |
| --- | --- |
| **LO1** | Know the levels of organisation within the human body |
| **LO2** | Be able to relate the structure of the circulatory system to its function in a multi-cellular organism |
| **LO3** | Be able to relate the structure of the respiratory system to its function |
| **LO4** | Be able to relate the structure of the digestive system to its function |
| **LO5** | Understand the immunological function of the lymphatic system |

***Criteria being assessed by this assignment:***

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|  | To achieve a **PASS** grade the evidence must show that the learner is able to: | To achieve a **MERIT** grade the evidence must **also** show that the learner is able to: | To achieve a **DISTINCTION** grade the evidence must **also** show that the learner is able to: |
| **LO3** | P4 Take measurements related  to the respiratory system,  relating the results to the  function of the respiratory  system | M3 Explain the need for  ventilation systems in a multicellular organism |  |

**SCENARIO**

A vital part of the human body is its ability to efficiently exchange gases in the lungs. In this assignment you need to research and explain the structure of the respiratory system and how this structure allows it to be efficiently adapted to carry out its function. Additionally you need to design and carry out an investigation into the effects of exercise on the breathing system. You will need to present all of your findings in the form of a website.

**Task**

Design and carry out an investigation into the effects of exercise on the respiratory system. You must decide what and how to investigate and collect the data. Finally you should write up the investigation with:-

* **Introduction** - Provide an annotated diagram of the respiratory system, including the function of different components where relevant. You should also produce an annotated diagram of alveoli where you clear explain how the different structures and features of the alveoli allow it to efficiently carry out gas exchange.
* **Aim** (which describes what you are investigating and briefly how)
* **Method and apparatus list** (which should also include how you will control all other variables that may affect the results)
* **Results** in a suitable format (table and/or graph)
* **Conclusion** (stating what your results shows)
* **Evaluation** (where you consider your and make suggestions for improvement that would have given more accurate and reliable results).

You should use the correct biological language through.

**Pass 4**

**Merit 3**

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**UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS ASSIGNMENT 2: THE RESPIRATORY SYSTEM Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature (declaration)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date Due:** I confirm that the work presented for assessment is entirely my own. I have acknowledged resources / references where appropriate.

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| **Grading**  **Criteria** | **Evidence required:** | **Student Checklist** | **Achieved**  **Y / N** | **Assessor Comments** |
| **P4** | A complete write up of your investigation into the effects of exercise on the breathing system |  |  |  |
| **M3** | An introduction with annotated diagrams of the respiratory system and the alveoli including an explanation of how structures are adapted to their function |  |  |

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| **Resubmission authorisation\*** |  | **Resubmission Date:** |  |
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| **Assessor Signature** |  | **Date:** |  |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |
| **Additional Notes** |  |

**Comments on work resubmitted:**

Criteria achieved: **LO3: P4 , M3 **

Assessor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IV Signature: Date:

Assessment Brief internally verified by\*: MT Date: 8/9/14 \*See IV File for appropriate documentation & records

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|  | **EDEXCEL BTEC LEVEL 3 EXTENDED DIPLOMA IN**  **APPLIED SCIENCE (MEDICAL SCIENCE)** |
| **UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS**  **ASSIGNMENT 3 : THE CARDIOVASCULAR SYSTEM**  **ASSESSOR: Stuart Hutchinson** Date Given: \_\_\_\_\_\_\_\_\_ Date Due:\_\_\_\_\_\_\_\_\_\_  **Name: ­­­­­­­­­**  **Criteria being assessed: LO2: P3 , M2 , D2 ** | |

**The learning outcomes for this unit are:**

|  |  |
| --- | --- |
| **LO1** | Know the levels of organisation within the human body |
| **LO2** | Be able to relate the structure of the circulatory system to its function in a multi-cellular organism |
| **LO3** | Be able to relate the structure of the respiratory system to its function |
| **LO4** | Be able to relate the structure of the digestive system to its function |
| **LO5** | Understand the immunological function of the lymphatic system |

***Criteria being assessed by this assignment:***

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|  | To achieve a **PASS** grade the evidence must show that the learner is able to: | To achieve a **MERIT** grade the evidence must **also** show that the learner is able to: | To achieve a **DISTINCTION** grade the evidence must **also** show that the learner is able to: |
| **LO2** | P3 Take measurements related  to the cardiovascular system, relating the results to the function of the cardiovascular system | M2 Explain the need for transport systems in a multi-cellular organism | D2 Explain how the digestive,  cardiovascular and respiratory systems are interrelated |

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**SCENARIO**

The body’s cells require both nutrients and oxygen to survive which are provided for by both the **Digestive** system and the **Respiratory** system however in order for these to reach the cells the **Cardiovascular** system is vital. It spreads through out every part of the body ensuring that it blood is supplied to every cell and that the nutrients and oxygen are delivered and the waste substances are removed. You will need to research and investigate the cardiovascular system as well as explain how it links the digestive and respiratory systems enabling the human body to survive.

**Task**

Carry out a quantitative assessment of blood plasma to identify the concentration of protein and then write a conclusion explaining your findings and the significance for the cardiovascular system .

Produce a comic strip for Robbie the Red Blood cell or some other well named character. It should show Robbie’s journey through the cardiovascular transport system. You should describe Robbie’s interaction with other cells and parts of the system, what changes he notices to his environment (the presence or not of certain nutrients, levels of oxygenation etc), and where he is in the system (name the major chambers of the heart and the names of the major vessels). Finally as part of the story you need to explain why a circulatory system is needed.

The final part of the assignment is to produce a large diagram linking the digestive, cardiovascular and respiratory systems together. Colour code the difference between oxygenated and deoxygenated blood, this will help you make sense of the connections they share. Then in no more than 500 words explain how they are interrelated. **Pass 3**

**Merit 2**

**Distinction 2**

**UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS ASSIGNMENT 3: THE CARDIOVASCULAR SYSTEM Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature (declaration)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date Due:** I confirm that the work presented for assessment is entirely my own. I have acknowledged resources / references where appropriate.

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| **Grading**  **Criteria** | **Evidence required:** | **Student Checklist** | **Achieved**  **Y / N** | **Assessor Comments** |
| **P3** | A complete write up of your investigation into the effects of exercise on the breathing system |  |  |  |
| **M2** | An essay and diagram describing the need for and the structure of the cardiovascular system |  |  |
| **D2** | An essay and diagram describing and explaining the interrelation of the digestive, respiratory and cardiovascular systems. |  |  |

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| **Resubmission authorisation\*** |  | **Resubmission Date:** |  |
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| **Assessor Signature** |  | **Date:** |  |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |
| **Additional Notes** |  |

**Comments on work resubmitted:**

Criteria achieved: **LO2: P3 , M2 , D2 **

Assessor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IV Signature: Date:

Assessment Brief internally verified by\*: MT Date: 8/9/14 \*See IV File for appropriate documentation & records

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|  | **EDEXCEL BTEC LEVEL 3 EXTENDED DIPLOMA IN**  **APPLIED SCIENCE (MEDICAL SCIENCE)** |
| **UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS**  **ASSIGNMENT 4 : THE LYMPHATIC SYSTEM**  **ASSESSOR: Stuart Hutchinson** Date Given: \_\_\_\_\_\_\_\_\_ Date Due:\_\_\_\_\_\_\_\_\_\_  **Name: ­­­­­­­­­**  **Criteria being assessed: LO2: P7 , M5 , D3 ** | |

**The learning outcomes for this unit are:**

|  |  |
| --- | --- |
| **LO1** | Know the levels of organisation within the human body |
| **LO2** | Be able to relate the structure of the circulatory system to its function in a multi-cellular organism |
| **LO3** | Be able to relate the structure of the respiratory system to its function |
| **LO4** | Be able to relate the structure of the digestive system to its function |
| **LO5** | Understand the immunological function of the lymphatic system |

***Criteria being assessed by this assignment:***

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|  | To achieve a **PASS** grade the evidence must show that the learner is able to: | To achieve a **MERIT** grade the evidence must **also** show that the learner is able to: | To achieve a **DISTINCTION** grade the evidence must **also** show that the learner is able to: |
| **LO5** | P7 Describe the structure and  purpose of the lymphatic system | M5 Explain how the lymphatic system protects the body | D3 Explain the difference in  lymphatic function in health and disease state |

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**SCENARIO**

The aim of this unit is to enable learners to investigate some of the organ systems of the human body and how they work together. Learners will have an opportunity to use appropriate tests to investigate the cardiovascular, respiratory, digestive and lymphatic systems and the organisation of cells and tissues.

**TASK**

Using either a suitable software package or hand-drawn, draw the lymphatic system in the human body and label the major components. Describe what each of the main structures do.

Write an essay of no more than 1000 words (though it can be much shorter) explaining how the lymphatic system protects the body. Illustrate your answer with suitable diagrams.

Produce a poster on a suitable software package showing 3 examples of diseases of the lymphatic system. For each disease you should describe and explain the cause of the disease, how it affects the lymphatic system, what the symptoms are and why they occur.

**UNIT 11: PHYSIOLOGY OF HUMAN BODY SYSTEMS ASSIGNMENT 3: THE LYMPHATIC SYSTEM Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature (declaration)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date Due:** I confirm that the work presented for assessment is entirely my own. I have acknowledged resources / references where appropriate.

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| **Grading**  **Criteria** | **Evidence required:** | **Student Checklist** | **Achieved**  **Y / N** | **Assessor Comments** |
| **P7** | Describe the structure and  purpose of the lymphatic system |  |  |  |
| **M5** | Explain how the lymphatic system protects the body |  |  |
| **D3** | Explain the difference in  lymphatic function in health and disease state |  |  |

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| **Assessor Signature** |  | **Date:** |  |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |
| **Additional Notes** |  |

**Comments on work resubmitted:**

Criteria achieved: **LO2: P7 , M5 , D3 **

Assessor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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