***BTEC Firsts (****Level 2****) in Applied Science***

***UNIT*** *3* ***ASSIGNMENT*** *3 – Criteria P3, M1 & M2*

***Assignment Title:*** *Independence of Living Organisms*

***Student Name: Teacher:***

***Date assignment issued: Final Completion Date:***

***Introduction***

In order to finish this unit you need to complete 6 assignments in total. To make sure you finish on time and meet all your deadlines the assignment has been broken down into tasks and will be spaced over the course.

Each task will start with the part of the grading criteria that the task relates to, example P1, P2 or P3. It will finish with a deadline for the task to be completed by.

**Overview:**

Learners explore the interdependence of living things, their environment and how they adapt to survive in that particular environment. Learner explains how changes in the environment can bring about evolutionary change though adaptation.

**The learning outcomes for the unit:**

To be able to investigate the functioning and classification of organisms.

**Brief**

You are working for a biological laboratory as a Science Technician. You need to create a classification key to help student volunteers classify organisms in a field survey of local habitats so that they can be counted.

***Task 1***

The interdependence and adaptation of organisms.

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| **Working on P3-**  **Grading Criteria:**  “Describe the interdependence  and adaptation of organisms.” | Using the food web below, describe the interdependence of a chain of at least 3 organisms:  food web.jpg  For at least 3 organisms in the food web, explain at least 3 adaptations which make them well suited to survive in their environment. | **Deadline for Task 1:** |

***Task 2***

How Variation brings about Evolutionary Change.

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| **Working on M1-**  **Grading Criteria:**  “Describe how variation  within a species brings about  evolutionary change” | Produce a poster to show how variation brings about evolutionary change.  Choose two organisms such as an animal or a plant and then create a poster, Include images to describe how variation within a species brings about evolutionary change.  E.g. how a camel has a developed long eye lashes to protect their eyes from sand and the other genetic variation?  evolution-3221E.g. how the organism has mutated?  E.g. why did all the short neck giraffes die out?  You may decide to choose the Peppered Moth – it’s a great example. How did changes in the environment lead to one variation of the moth (the Black variety) increasing in number? How does this show how variation can bring about evolutionary change? | **Deadline for Task 2:** |

***Task 3***

Interaction over time

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| **Working on M2-**  **Grading Criteria:**  “Explain how organisms within  an ecosystem interact over  time.” | For the example in task 1 how are the foxes dependant on the number of rabbits and how are their numbers affected by the population of squirrels and mice?  What happens when numbers of rabbits increase?  Why?  Draw and explain a graph to show the predator-prey cycle over time. | **Deadline for Task 3:** |

**Self Assessment Checklist**

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| **Task** | **What you will have produced** | **Deadline** |
| **1 linked**  **to P3** | * Create at least 2 identification keys to allow identification of the major vertebrate groups and one other set of organisms   **(IDENTIFICATION KEYS)** |  |
| **2 linked**  **to M1** | * Produce a poster to show how variation brings about evolutionary change   **(POSTER)** |  |
| **3 linked**  **to M2** | * Create a flyer including a predator-prey graph explaining how organisms in your ecosystem interact over a period of time   **(FLYER)** |  |

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| **Resource list** | |
| Websites:   * [www.bbc.bitesize.co.uk](http://www.bbc.bitesize.co.uk) * [www.schoolscience.co.uk](http://www.schoolscience.co.uk) * [www.sciencemuseum.org.uk](http://www.sciencemuseum.org.uk/WhoAmI/FindOutMore/Yourgenes.aspx) * [www.societyofbiology.org.uk](http://www.societyofbiology.org.uk) * [www.practicalbiology.org](http://www.practicalbiology.org) | Text books   * Biology for you * Edexcel 360 - Core and additional * 21st Century Science Biology textbook |

**Final things:**

* + Page number your portfolio (make sure it is all in the correct order)
  + Include a bibliography stating all your sources
  + Use appendices to store any additional information e.g. your screen dumps or newspaper articles
  + Make sure you create your own front cover with your name, the BTEC details and the unit details plus your teacher’s name.