

**YEAR: 11 SUBJECT: Applied Science (Double Award)**

Knowledge Focus - Unit 4: Task Based Assessment Learners will prepare for the practical component of the qualification; known as the Task Based Assessment (20% of the final grade).



**Skills, knowledge and understanding to be developed in this Learning Plan:**

Learners will acquire the skills needed to carry out practical procedures in the laboratory, industry and commercial work place. They will learn how to develop skills that enable them to:

- Devise and carry out scientific investigations
- Analyse scientific data
- Manage Health and Safety

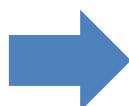
**Key terms to be learned in this**

**LP:**

- Prediction, Conclusion, Evaluation
- Risk assessment, Nutrient
- Intensive farming
- Organic farming
- Selective breeding

**Week 1 - Learning Objectives: Unit 4 Activity 1**

ACTIVITY 1 - Carrying out a practical investigation in an applied scientific context. Learners will formulate a plan, analyse and evaluate data. When obtaining results, learners will be permitted to work in groups of no more than three, under a limited level of control.



**Objective assessments:**

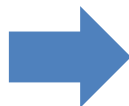
Be able to:  
Devise a plan for a practical given a scenario and work safely both independently and in a group to achieve results.

**Homework/Gwaith cartref:**  
**Exam questions drawing covalent bond diagrams.**

Set:  
Due:

**Week 2-3 Learning Objectives: Unit 4 Activity 2**

When learners carry out an investigation they will develop the skills that enable them to: • devise methods to solve problems o plan a method to solve a problem/ answer a question o write standard procedures • carry out standard procedures • collect primary data • process primary and secondary data • analyse and interpret primary and secondary data • draw evidence-based conclusions • assess the validity and quality of evidence • evaluate methods used to solve practical problems.



**Objective assessments:**

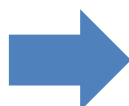
Be able to:  
Devise methods to solve problems. Answer written questions about that practical using standard scientific procedures.

**Homework/Gwaith cartref:**

Set:  
Due:

**Week 4 - Learning Objectives: Unit 4 Delivery**

ACTIVITY 2 - Analysis of data in an applied scientific context (15 marks). Learners will analyze data which will allow them to develop the skills that enable them to: • use mathematical methods to analyze data • draw evidence-based conclusions • assess the quality of evidence given • evaluate methods • suggest improvements



**Objective assessments:**

Be able to:

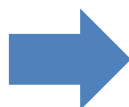
**Homework/Gwaith cartref:**

Set:  
Due:

ACTIVITY 3 - Risk assessment This will be carried out under a high level of control and will be completed in one session of 60 minutes duration. Learners must work individually, and no teacher feedback or assistance is allowed. Learners will assess risks associated with the collection of numerical and other data and manage risks when using practical techniques, carrying out standard procedures, and solving practical problems. They will develop the skills to enable them to: • use chemical 'safety sheets' to identify chemical hazards • identify the risks that arise from carrying out procedures • suggest control measures to reduce risk • carry out risk assessments • follow health and safety procedures to manage risk.

**Weeks 5-7 - Learning Objectives: 3.2 – Food for the future**

Plant nutrient requirements (nitrates and potassium) and the effects that these have on growth.  
The impact of the use of nitrogen fertilisers.  
The differences in intensive and organic farming (yield, cost of production).



**Objective assessments:**

Be able to:  
Identify the nutrients required for plant growth.  
The impact of fertilisers on nutrient availability for plants.

**Homework/Gwaith cartref:**

Set:  
Due:

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The impact of pesticides and fertilisers on the environment.  
Opinions associated with intensive farming and the use of pesticides in food production.  
Artificial transfer of genes to improve crop yield; potential disadvantages and issues.  
Selective breeding of plants includes disadvantages such as reduction in variation and increased susceptibility to disease.

The differences in organic and intensive farming and how these can impact cost and yield.  
Discuss the advantages and disadvantages of selective breeding in plants for desirable characteristics.

