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| Description: Description: Vertical full colour positive | Year 12 General Biology  Task 6 – Abiotic Factors Investigation |

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| **Name:** | **Teacher:** | **Date:** | **Mark:**    / 40 | **Percentage:** |

**Assessment type:** Science Inquiry – Practical and Lab Report

**Conditions**

Time for the task:

* **Part A- Practical investigation and data collection- completed in class and data collected for a duration of 2 weeks.**
* **Part B- Write up Lab Report**

**Task weighting** – 10%

**Abiotic factors on plant growth investigation**

**Introduction**

Abiotic factors are the non-living components within an ecosystem which shape and influence the biotic living organisms. Abiotic factors have a large influence on quality of air, food, shelter, environmental conditions and habitat.

In this investigation, we will be selecting plants of similar growth and situating them in artificially made ecosystems where we can control the abiotic factors of sunlight and air quality to monitor their growth.

Purpose

1. Set up ecosystem with various abiotic factors to house the plants for the duration of two weeks.
2. Observe and monitor the development of plant growth with varying abiotic factors.
3. Display findings as scientific lab report.

**Background Information** – Use your research skills and provide some background information on plant growth and the optimal conditions needed for them.

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**Aim**

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**Hypothesis**

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**Independent Variable:**

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**Dependent Variable:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Controlled Variables** (at least three)**:**

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**Materials**

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**Method**

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**Diagram:**

**Results Table**

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Graph**

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Description automatically generated**

**Discussion of Results**

**Discuss results and trends in graph using support of data.**

**Use scientific concepts to discuss relationship between plant growth and abiotic factors.**

**Describes 2 difficulties encountered with the investigation.**

**Suggest 2 ways in which the investigation could be improved.**

**Comparison of results to your hypothesis.**

**Summarisation of results and findings.**

**Marking Key**

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| **Description** | **Mark** |
| **Background**  Explanation of abiotic factors needed for plant growth.  In depth detail supporting information.  Providing example to help explain concept. | **/3** |
| **Aim**  States appropriate aim that reflects the investigation’s purpose. | **/1** |
| **Hypothesis**  Correctly states an appropriate hypothesis. | **/2** |
| **Variables**  Independent  Dependent  Controlled (minimum of 3) | **/5** |
| **Materials**  Provides a comprehensive list of materials. | **/1** |
| **Method**  Provides a detailed description of steps.  Listed and numbered in correct categorical order. | **/2** |
| **Diagram**  Correct drawing of both systems  Correct labelling of both systems  Use of pencil and ruler | **/3** |
| **Table of Results**  Title  Data and observations completed  Detail provided | **/3** |
| **Graph**  Title  Axis title  Indices  Line graph correctly plotted (only plotting averages)  Scale | **/5** |
| **Discussion of results with support of data**  Describe results in closed system  Uses data from closed system to support answer  Describe results in open system  Uses data from open system to support answer | **/4** |
| **Use of scientific concepts explaining relationships between plant growth and abiotic factors**  Discusses relationship between biotic factor and abiotic factor.  Uses scientific concepts in answer. | **/2** |
| **2 difficulties encountered**  States 2 difficulties whilst completing the investigation. | **/2** |
| **2 improvements**  States 2 improvements which can be made in the experiment to help validity of results. | **/2** |
| **Comparison of results with hypothesis**  Identify if results support hypothesis.  Explain your justification to this. | **/2** |
| **Summarise results**  Summarise experiment.  Restate overall findings.  Provide reason behind findings. | **/3** |
| **Total Marks** | **/40** |