**Investigating Abiotic factors**

**NAME: CLASS:**

Now that you are familiar with ecosystems and abiotic factors, you will observe plant growth over the course of 3 weeks to see whether a change in **one abiotic factor** affects plant growth.

**GROUPS**

You will work in pairs to complete this investigation. The partner that you will need to work with will be randomly chosen.

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| **My partner is** |

**AIM**

Write the aim of this investigation in your own words (**HINT:** Read the first line at the top of the page!!)

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| **The aim of this investigation is to** |

Discuss with your partner which abiotic feature you are able to modify most easily – this will become your ***independent variable***.

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| **Our independent variable is** |

As you will observe how this feature affects the organisms present in the ecosystem, what you observe will be your ***dependent variable***.

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| **Our dependent variable is** |

All other abiotic features and some important sampling methods will be your ***controlled variables***.

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| **Some controlled variables are** |

**HYPOTHESIS**

Discuss with your partner what effect you think that changing your chosen abiotic feature will have on your plant. Write this in the form of a hypothesis – a scientific statement about what is expected to happen.

*E.g. A plant with watered everyday will have more leaves*

*A plant exposed to higher amounts of sunlight will grow taller.*

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| **A plant** |

**ABIOTIC DATA**

In the table below, record your measurements of some abiotic factors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Day | Control | Plant 1 | Plant 2 | Plant 3 |
| 1  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 2  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 3  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 4  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 5  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 6  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 7  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 8  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 9  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 10  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 11  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 12  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 13  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 14  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| 15  Date: \_\_\_\_\_\_\_\_\_\_ |  |  |  |  |

**DESCRIPTION OF PLANT GROWTH**

Record how the plant growth has changed over time

|  |  |
| --- | --- |
| Day | Observation of plant growth  Description |
| 1  Date: \_\_\_\_\_\_\_\_\_\_ |  |
| 2  Date: \_\_\_\_\_\_\_\_\_\_ |  |
| 3  Date: \_\_\_\_\_\_\_\_\_\_ |  |
| 4  Date: \_\_\_\_\_\_\_\_\_\_ |  |
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| 14  Date: \_\_\_\_\_\_\_\_\_\_ |  |
| 15  Date: \_\_\_\_\_\_\_\_\_\_ |  |

**Graph**

Graph the results of your radish plant below. You will need to include the main features of a graph and think about how best to neatly and clearly present the data you collected.

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**WHAT DID YOU FIND?**

Now that you have collected data for four plants, compare and contrast the abiotic factors by discussing what you have observed. Refer to all of the data you have collected, including descriptions of the plant growth and how abiotic factors contribute to plant growth

***SOIL INVESTIGATION – Marking Guide Name:***

|  |  |
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| **Marking Criteria** | **Marks** |
| **Aim** |  |
| Correct aim relating to the experiment and variables | **1** |
| **Variables** |  |
| Correct independent variable | **1** |
| Correct dependent variable | **1** |
| At least three controlled variables | **3** |
| **Hypothesis** |  |
| Includes independent variable | **1** |
| Includes dependent variable | **1** |
| **Abiotic data** |  |
| 1 mark per completed column (max 5) | **5** |
| Completed in pencil | **0.5** |
| Neatly recorded | **0.5** |
| Correct units | **1** |
| **Description plant growth** |  |
| Daily observations completed | **2** |
| Detailed | **1** |
| **Graph** |  |
| Title | **1** |
| Labelled axis (1 mark each) | **2** |
| Units on axis (0.5 marks each) | **1** |
| Correct type of graph | **1** |
| Use of pencil and ruler (0.5 each) | **1** |
| Correct plotting of data | **1** |
| **Discussion of results** |  |
| Refers to aim | **1** |
| States the relationship between the aim and the results | **1** |
| Explains why the results were observed | **2** |
| Refers to both observations and quantitative data | **2** |
| Discusses sources of errors and any problems | **2** |
| Suggests future modifications to their experiment | **1** |
| Summarises how the abiotic factor affected the plant | **1** |
| **Total** | **35** |
|  |  |

Comment:

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