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| A picture containing clipart  Description automatically generated | **Year 11 General Biology**  **Task 8 – Factors Affecting Transpiration** | | |
| **Name:**  **Date:** | | **Teacher:** | **Score: /40** | |

## Task 8 Factors affecting transpiration

**Assessment type:** Science Inquiry Investigation

**Conditions**

Time for the task:

* ***1 Session- planning***
* ***1 Session- conducting***
* ***2 Session- collecting results and writing up report***

**Task Weighting 8%­­­­­­­­­­­**

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**Background Information**

*The clearing of forest is one cause of soil salinity problems being experienced today in parts of Australia. Transpiration (the evaporation of water from plants leaves) draws water up from the soil that surrounds plants roots. Many trees have deep and extensive root systems and through transpiration, they keep the water table well below the soil surface and prevent rising salt levels. As a part of an extensive salinity control program, a group of CSIRO scientists is investigating just how much water is transpired by trees.*

*Water loss also can be measure by a potometer, which measures the rate of movement of an air bubble between two point on a capillary tube. If the environment surrounding the shoot changes, then changes in the rate of air bubble movement may be observed. The movement of the bubble indicates the rate of transpiration.*

**Task:**

Investigate how the effects of different environments impact the rate of transpiration in a plant.

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| A picture containing drawing  Description automatically generated | **Science Inquiry – Scientific Report** |

**No half marks are to be awarded – whole marks only.**

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| **Marking key** | |
| **Description** | Marks |
| **Introduction** |  |
| Describes clear and detailed explanations of theories/concepts or models in relation to the investigation. | 1-4 |
| **Subtotal** | 4 |
| Questioning and predicting | |
| Correctly identifies the variable to be changed (independent variable). | 1 |
| Correctly identifies the variable to be measured (dependent variable). | 1 |
| Correctly identifies at least two controlled variables. | 1-2 |
| **Subtotal** | **4** |
|  | |
| Writes a hypothesis that describes a relationship between the dependent variable and the independent variable; and matches the question posed above. | 1–2 |
| **Subtotal** | **2** |
| Planning and conducting | |
| Selects the appropriate equipment required to conduct the investigation. | 1 |
| **Subtotal** | **1** |
|  | |
| Identifies possible ethics and safety risks associated with the investigation. | 1–2 |
| Suggests ways to minimise the risks. | 1–2 |
| **Subtotal** | **4** |
|  | |
| Provides a method with a logical sequence of steps. | 1 |
| Provides a method which contains sufficient detail to allow replication.  Detail includes:   * how the independent variable is changed * how the dependent variable is measured * how other variables are controlled * plans for repeat trials/replicates. | 1–4 |
| **Subtotal** | **5** |
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| Processing data | |
| Graphs data collected from the investigation (if applicable):   * provides appropriate graph title * labels axes correctly * includes appropriate units of measurement * plots data correctly * draws the appropriate type of graph. | 1–5 |
| Subtotal | **5** |
| Analysing data |  |
| Describes relationships or trends in the results. | 1–2 |
| Refers to specific data when describing relationships or trends. | 1 |
| Compares the results to their hypothesis. | 1 |
| Subtotal | **4** |
|  |  |
| Explains the relationships or trends in the results using scientific concepts and models. | 1–2 |
| Subtotal | **2** |
| Evaluating | |
| Identifies difficulties experienced when conducting the investigation.  May include reference to, but not limited to: quality of the data, correct use of equipment, choice of equipment. | 1–2 |
| Makes suggestions to overcome the difficulties described, including ways to improve the quality of the data. | 1–2 |
| Comments on the reliability and validity of the data. | 1-2 |
| Subtotal | **6** |
| Conclusion | |
| Summarises the patterns or trends in the data, with reference to the original hypothesis. | 1–2 |
| Subtotal | **2** |
| Total | **40** |

**No half marks are to be awarded – whole marks only.**