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| A picture containing drawing  Description automatically generated | **Year 11 General Biology**  **Task 7 – Gas Exchange in Plants** |

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| **Name:** | **Teacher:** | **Date:** |

## Task 7 Gas Exchange in Plants

**Assessment type:** Extended response

**Conditions**

Time for the task:

* Part 1: Two lessons to research topic and complete notes at home.
* Part 2: One lesson for in-class validation – extended response exam style question.

Your research must be handed in or before the day of the In-class assessment to be awarded marks. You can choose the format in which you would like to present your research, as long as it is compatible for submissions i.e. iMovie, notes, PowerPoint, keynote, written and/ or typed.

A maximum of four pages if written/type and maximum of 10 slides. Research must be in your own words, not copied and pasted. List all references used.

**Task Weighting 10%­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part 1 Research:**

**(14 marks)**

*Each part of the plant takes care of its own gas exchange needs. Although plants have an elaborate liquid transport system, it does not participate in gas transport. Roots, stems, and leaves respire at rates much lower than are characteristic of animals. Only during photosynthesis are large volumes of gases exchanged, and each leaf is well adapted to take care of its own needs*

*In order to carry on photosynthesis, green plants need a supply of carbon dioxide and a means of disposing of oxygen. In order to carry on cellular respiration, plant cells need oxygen and a means of disposing of carbon dioxide (just as animal cells do). Unlike animals, plants have no specialized organs for gas exchange (with the few inevitable exceptions!).*

Your task is to research the structures of plants that enable gas exchange to occur. Through online research from reliable sources answer the questions that follow. Remember you references!

1. Research the structure of leaves, what tissues and cells are involved in the makeup of a leaf?
2. How do these structures allow for gas exchange?
3. Explore the gas exchange site for roots and stems, what structures are involved and how do they function.
4. Evaluate the relationship between osmosis and diffusion with gas exchange.
5. Analyse how the SA:VOL ratio impacts the rate of diffusion
6. Transpiration occurs within plants ending in the leaf, research how the leaf structure enables this process and how it is linked to gas exchange.
7. References

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| **Name:**  **Date:** | | **Teacher:** | **Score: /26** | |

## Task 7 Gas Exchange in Plants

**Assessment type:** Extended response

**Part 2: In-class assessment**

**Questions**

Answer all questions in the space provided.

1. Label the following diagram of a plant:

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(4 marks)

1. Locate the site of gas exchange on your diagram ( 1 mark )
2. Using arrows indicate the path of the gases diffusing through the network of the leaf. ( 1 mark )
3. The spongy mesophyll hasloose packing of parenchyma cells in leaves, stems, and roots they provide an interconnecting system of air spaces. How does this structure help with gas exchange within the leaf?

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( 1 mark )

1. Describe the key features of a stomata.

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( 2 marks )

1. Using osmotic pressure, explain the role of the guard cells and how they facilitate gas exchange.

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( 3 marks)

1. Where is the gas exchange site for roots and stems?

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( 1 mark )

1. Describe the structure from question 7 and explain how it allows gases to diffuse in and out of the plant.

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(2 marks)

1. Transpiration is the evaporation of water from plants. Explain how this occurs, include in your answer the site of transpiration.

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( 3 marks )

Extended Answer Question:

1. Plants require inputs and outputs to maintain life, explain why gas exchange is important and identify ALL the processes that are maintained during gas exchange.

Include in your answer the factors impacting diffusion and how the processes involved are linked.

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( 8 marks )

**End of assessment**