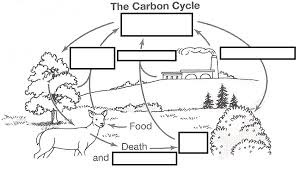
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| outhern River College | **Year 11 Earth and Environmental Science**  **Task 9:** |

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| **Name:**  **Due Date:** | **Teacher:** | **Score: /36** |

1. Fill in the diagram below with the different carbon cycle processes **(6 marks)**



Photosynthesis is one of the processes that removes carbon from the atmosphere. One of the ways in which we can measure the rate of photosynthesis is via comparing the behaviour of photosynthesis with available carbon and non available carbon.

In this experiment we will compare the behaviour of leaf disks in a solution. Usually the leaf disks float, but when the air spaces are infiltrated with solution the density of the leaf increases and so it sinks. The solution that the leaf disks will be placed into is sodium bicarbonate. Bicarbonate acts as the carbon source for photosynthesis. As photosynthesis proceeds oxygen is released into the interior of the leaf which changes the buoyancy causing the leaf to rise. The rate at which the leaf disks rise in an indirect measurement of photosynthesis.

2. What is the equation for photosynthesis? **(4 marks)**

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3. What is the aim of the experiment? **(1 mark)**

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4. What is the independent variable? **(1 mark)**

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5. What is the dependent variable? **(1 mark)**

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6. What are **(2)** controlled variables? **(2 marks)**

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**Materials:**

- Sodium bicarbonate

- Plastic syringe

- Leaf material

- Hole punch

- Plastic cups

- Timer

- Light source

**Method (5 marks)**

7. Can you write a detailed method including quantities in the space below

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8. In the space below can you draw a sketch of your experiment with labels **(3 marks)**

**Results (3 marks)** 9. Can you record your results in a table below

10. **Graph (5 marks)**

Can you please create a graph on the attached graph paper.

**11. Discussion (5 marks)**

Can you write a discussion that details why you obtained the results in which you did. Compare this to other studies, discuss the accuracy, validity and any improvements that could be made to obtain more accurate results.

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