

## Science Skills Year 9 booklet: 1

### Investigating Photosynthesis in Pondweed

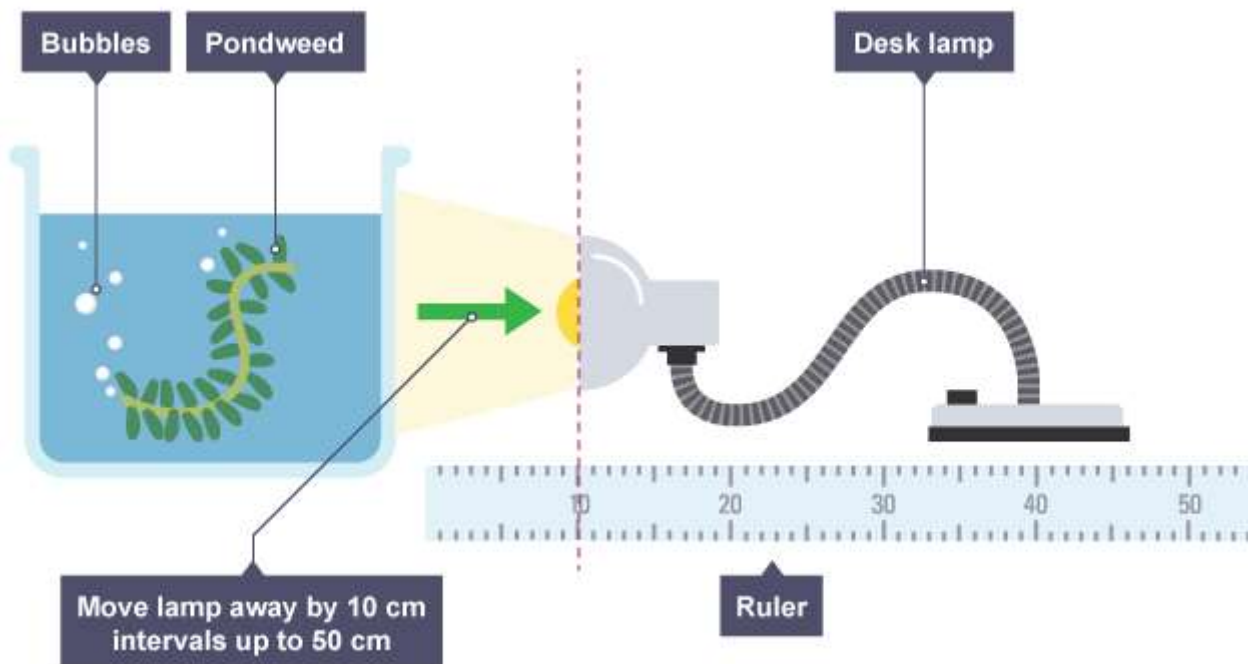
Task 1 deadline (self-assessed):

Task 2 deadline (peer-assessed):

Task 3 deadline (teacher-assessed):

The tasks in this booklet relate to the investigation below. Read the following information before attempting any of the tasks.

The equipment to use:



## Task 1

*Everyone to do-* Match the key terms to the definitions:

Oxygen	A gas released during photosynthesis
Photosynthesis	Something which impacts the rate of photosynthesis
Light intensity	How much light is falling on an object
Limiting factor	A chemical reaction which forms glucose from carbon dioxide and water
Distance	A measurement of length

**Green:** you will be tested on the spelling of the five key terms

**Amber:** you will be tested on the spelling and the definition of the key terms

**Red:** you will be tested on the spelling and definition of the key terms. You will also need to put each into a sentence

**Killer:** you will be asked for synonyms for the key terms (if there are any!)

## Task 2

### **Green:**

Identify the pieces of equipment you would need for the method. Include sizes. For each, write if there is a risk involved and how you would minimise the risk.

Aim for 5!

Peer assessment score:

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### **Amber:**

Write a detailed method for the investigation. *Ensure that you are specific with what equipment you will use, your independent variable, your dependent variable and your control variables.*

*You need to use a minimum of 50 words and chunk your information into manageable steps!*

Peer assessment:

STAR:

STAR:

WISH:

### **Red:**

Write an **alternative method** to the one above which improves the accuracy of the dependent variable. *Ensure that you are specific with what equipment you will use, your independent variable, your dependent variable and your control variables.*

*You need to use a minimum of 50 words and chunk your information into manageable steps!*

Peer assessment:

STAR:

STAR:

WISH:

### Task 3:

**Green:**

Distance of lamp from pondweed in cm	Number of bubbles given off in one minute
100	8
50	28
25	105
10	105

Using the above data, plot a scatter/line graph. Put the distance on the x axis, using 1 square to represent 10cm. Put the number of bubbles on the y axis, using 1 square to represent 10 bubbles.

**Amber:**

Distance of lamp from pondweed in cm	Number of bubbles given off in one minute			Mean number of bubbles in one minute
100	8	6	10	
50	28	20	30	
25	105	100	104	
10	105	95	103	

Using the above data, calculate the mean number of bubbles. Then, plot a scatter/line graph with the distance on the x axis and the mean number of bubbles on the y axis.

**Red:** Using the data from the amber task, calculate the mean number of bubbles after excluding any anomalous results. Then, plot an appropriate graph, ensuring you add an appropriate line.

Teacher assessment:

A2L = 1	Work is thorough, you have picked challenging tasks and have shown effort and understanding.
A2L = 2	Work has detail in most places, you have picked relevant tasks and have shown effort.
A2L = 3	Work lacks detail, there are some errors and shows some lack of preparation/understanding.
A2L = 4	Work is incomplete, there are errors throughout and a clear lack of preparation/understanding.

Teacher comment: