

Contents

1 Exercise 5: Photosynthesis & The Carbon Cycle	1
1.1 Procedure 1	1
1.2 Procedure 2	1
1.3 Procedure 3	2
1.4 Procedure 4	2

1 Exercise 5: Photosynthesis & The Carbon Cycle

1.1 Procedure 1

QUESTIONS

1. The gradual change to red indicates that the PH is becoming more neutralized.
2. The change in PH indicates that Carbon Dioxide is being removed.
3. The Carbon Dioxide disappeared as a result of photosynthesis.
4. The PH of the water in a shallow pond with a lot of submerged plants and algae would change over a 24 hour period because photosynthesis would stop occurring.
5. We included the tube without Elodea in the experiment because we needed to have a controlled variable in the experiment.

1.2 Procedure 2



QUESTION

1. The pattern of the black area are where the starch is. It also corresponds to where the chlorophyll was and it's evident that the chlorophyll is required to make glucose and starch.

1.3 Procedure 3

QUESTIONS

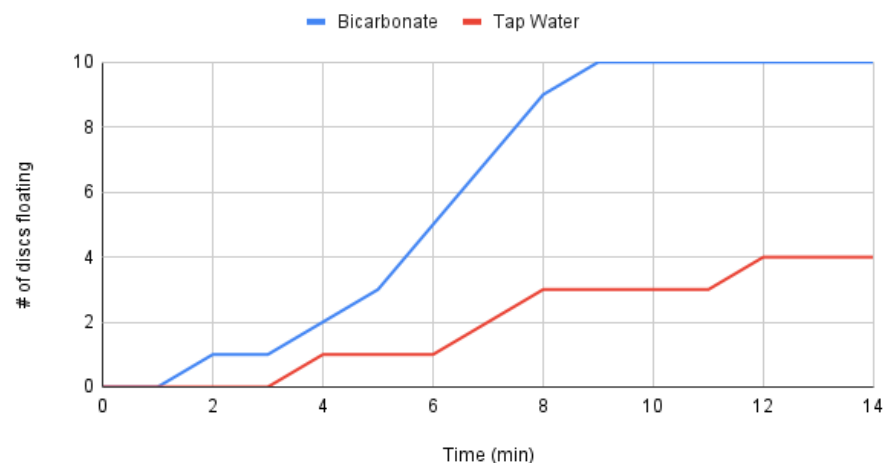
1. What is the main function of the green pigments?
Chlorophyll A and Chlorophyll B compliment each other by receiving and transferring light energy which further allows plants to create oxygen.
2. What is the main function of the pigments that aren't green?
The carotenoids (Carotene & Xanthophyll) assist Chlorophyll by receiving wavelengths of light *separate* from Chlorophyll. Also is displaying colors generally seen in the spectrum from red to yellow.

1.4 Procedure 4

Table 5.1

	Number of Discs Floating in Bicarbonate	Number of Discs Floating in Tap Water
0	0	0
1	0	0
2	1	0
3	1	0
4	2	1
5	3	1
6	5	1
7	7	2
8	9	3
9	10	3
10	10	3
11	10	3
12	10	4
13	10	4
14	10	4

Chart 5.1



QUESTIONS

- Which syringe had the most floating disks? Why?
The Sodium Bicarbonate. In order for plants to exercise photosynthesis, the plant must have a carbon source. Upon deoxygenating the spinach disks, the sample inside the water cup were unable to receive any carbon resulting in a majority to sink. Contrasted with the Sodium Bicarbonate, the spinach disks had a source of carbon which could be utilized by the spinach, and rise.
- What is the gas being released by the leaf disks?
Per photosynthesis, the leaf disks release oxygen.
- Which syringe is the control?
The syringe containing tap water is the control.
- Which syringe is the experimental?
The syringe containing Sodium Bicarbonate is the experimental.
- What is the experimental variable in this experimental design?
The solution inside the syringe would be the experimental variable.
- List at least two controls in this experimental design.
 - The amount of disks
 - Lamp