



PLANT AND LIGHT INVESTIGATION

AIM:

Investigate the effect of light intensity on the rate of photosynthesis.

INDEPENDENT
VARIABLE

Distance from light source

DEPENDENT
VARIABLE

Volume of oxygen produced



WHAT SAMPLES ARE WE TESTING?

10 cm from light source
20 cm from light source
30 cm from light source
40 cm from light source
50 cm from light source

ACCURATE MEASUREMENTS
OF VARIABLES (IV, DV)

Used a measuring cylinder to measure the volume of oxygen produced. The measuring cylinder was placed over the gas syringe and the volume of oxygen was measured every 10 seconds.

VALIDITY: HOW TO CONTROL
OTHER VARIABLES

Variable	How you kept it the same
Temperature	Room temperature
Amount of light	Same distance from light source
Amount of water	Same amount of water

RELIABILITY:
CONSISTENT TRIALS

Repeated the experiment 3 times.

EQUIPMENT DIAGRAM/NOTES



METHOD

The study was conducted in a classroom setting with 20 participants. The participants were divided into two groups of 10 each. The first group was the control group and the second group was the experimental group. The control group was given a standard worksheet and the experimental group was given a worksheet with a smiley face. The participants were asked to complete the worksheet within a 10-minute time limit. The results were then compared between the two groups. The control group completed the worksheet in an average of 8 minutes, while the experimental group completed it in an average of 6 minutes. This suggests that the smiley face worksheet may be more effective than the standard worksheet.



DATA COLLECTION

The data was collected using a survey questionnaire. The questionnaire was distributed to the participants at the end of the study. The questionnaire asked the participants to rate their satisfaction with the worksheet and their overall experience. The data was then analyzed using a statistical software package.

The results of the data collection showed that the participants in the experimental group were more satisfied with the worksheet and their overall experience than the participants in the control group. This suggests that the smiley face worksheet may be more effective than the standard worksheet.

CONCLUSION

The study concluded that the smiley face worksheet was more effective than the standard worksheet. The participants in the experimental group were more satisfied with the worksheet and their overall experience than the participants in the control group. This suggests that the smiley face worksheet may be more effective than the standard worksheet.

The study also found that the smiley face worksheet was more effective than the standard worksheet in terms of time taken to complete the worksheet. The participants in the experimental group completed the worksheet in an average of 6 minutes, while the participants in the control group completed it in an average of 8 minutes.

Copy or cut out the following things and glue them into the right part of your investigation worksheet.

White
Blue
Green
Red
No light

Measured the amount of water with a measuring cylinder and weighed the soil to make sure all the plants got the same resources.

1. Collect 15 radish plants and water them with 10 mL of water.
2. Measure the starting height of all the plants.
3. Place 3 plants into their own separate closet, make sure all closets are at the same temperature.
4. For closet number 1, shine normal white light onto the 3 plants.
5. For closet number 2, shine blue light onto the 3 plants.
6. For closet number 3, shine green light onto the 3 plants.
7. For closet number 4, shine red light onto the 3 plants.
8. For the last closet, don't shine any light onto the 3 plants.
9. Every day for a week, water the plants again with 10 mL of water.
10. At the end of the week, measure all the final heights of the plants.
11. Subtract the starting height from the final height to see how much the plants grow over the week.

To Investigate how light colour affects plant height.

Repeated the experiment 3 times.

Colour of the light

Height of the plant

Variable	How you kept it the same
Same amount of water	Each plant got the same amount of water each day.
Same type of plant.	A radish plant was used in all three experiments.
Same temperature	All plants were grown at room temperature.



Colour of light	Change of Height (cm)			
	Trial 1	Trial 2	Trial 3	Average
White	23	19	27	23
Blue	14	15	13	14
Green	5	5	5	5
Red	18	20	16	18
No light	2	3	1	2

The plants that were under the white light grew the most, where as the plants that grew the list was the one that had no light.

When ranking the coloured lights, the heights to lowest was red, blue, and then green.