

The background of the entire slide is a repeating pattern of stylized red radishes with green leaves on a light beige background. The radishes are depicted in various sizes and orientations, creating a dense, decorative texture.

Radishly Unexpected

The Effect of Light On Plant Growth

By Charlotte Sweetman



Question

How Does The Amount Of Light Effect Plant Growth?

Research

From the research that was collected it showed that light has a major effect on plant growth in terms of strength and other benefits. (Anna-Karin Smith, Paragraph 1) When you increase the amount of energy, which will translate into growth, darkness seems to be an important growth factor. (Professor Greg Ventor, Paragraph 3,5) Full sun should lead to more growth than indirect light. (Adrienne Jerett, Paragraph 8) Finally planting the seeds uniformly is important as the depth impacts the growth. (Marie Iannotti, Paragraph 2)

Risk Analysis

- Risk for animal consumption

Variables

- Independent variable: The Amount of Light
- Dependent variable: The Growth of Plants
- Controlled variables (constants): The constants in the experiment are: the seeds, the amount of water, the soil/fertilizer.

Hypothesis

If plants are grown in full sun then they will grow faster than in no light/partial light.

Materials

- 9 containers
- 2oz of water
- 45 radish seeds
- Soil

Procedure

- Fill all 9 plant containers with equal $\frac{1}{2}$ cup of soil
- Label the containers with silver sharpie
- Gently 1 inch of water each container with water
- Sprinkle seeds for every pot evenly across the soil
- Add a 3 inches of soil over the top of the soil
- Place three pots in the cabinet, in a shaded room, and sun filled window
- Water the plants daily with equal 2oz of water around 5:00 pm everyday until the experiment is finished

Data/Observations

- On each day, and overall, the plant with no sunlight showed the most growth. The plant with partial sunlight demonstrated the second most growth, and plants with full sunlight grew the least.
- Plants with no sunlight grew at a rate 2x faster than the plant with sunlight.
- Growth began in all three environments on day 5.
- Despite the plants in full sunlight having smaller growth, their appearance was much healthier. The color of the stem and leaves were a bright green, and the stems were strong and straight. While Partial Sunlight and No Sunlight had yellow leaves, and their stems broke constantly and rested on the soil.

No Sunlight Comparison



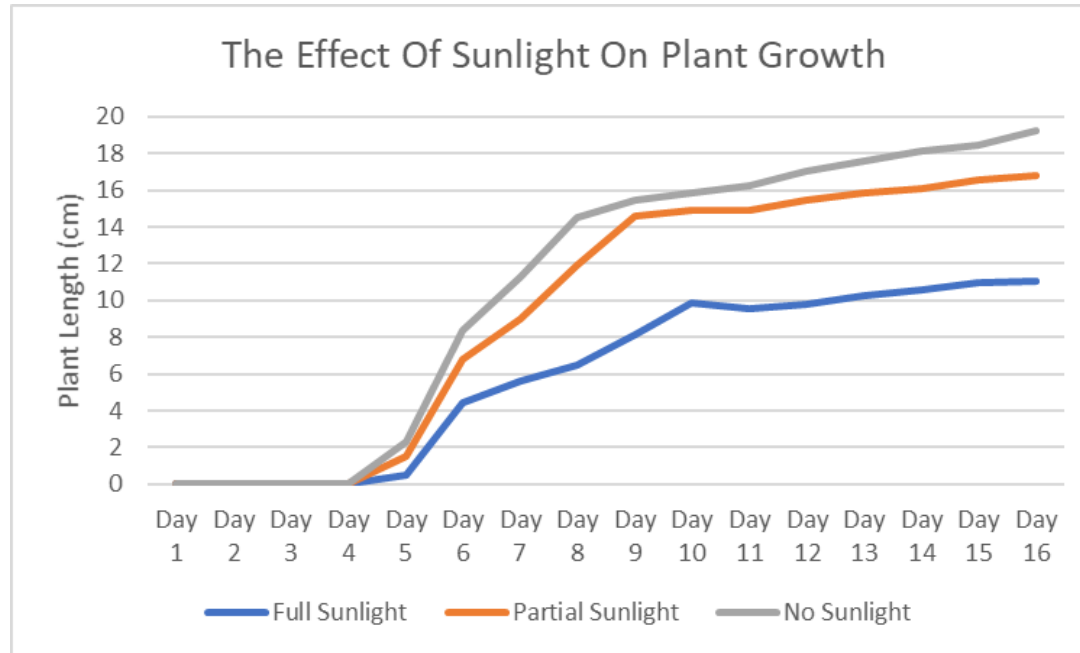
Full Sunlight Comparison



Partial Sunlight Comparison

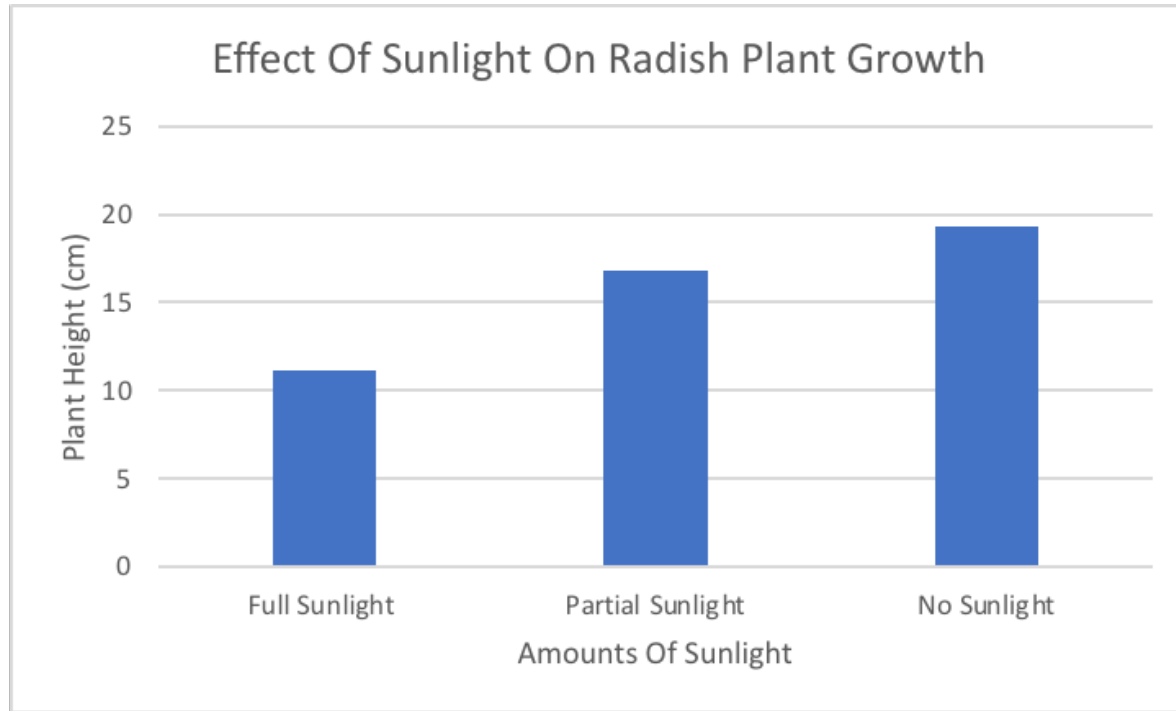


Total Plant Growth Per Day



Day →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Full Sunlight	0	0	0	0	0.5	4.4	5.6	6.5	8.1	9.9	9.6	9.8	10.2	10.6	10.9	11.1
Partial Sunlight	0	0	0	0	1.5	6.8	9.0	11.9	14.6	14.9	14.9	15.5	15.8	16.1	16.6	16.8
No Sunlight	0	0	0	0	2.3	8.4	11.3	14.5	15.5	15.9	16.3	17.0	17.6	18.2	18.4	19.3

Final Plant Height



Exposure type	Height in cm
Full Sunlight	11.1
Partial Sunlight	16.8
No Sunlight	19.3

Conclusion

The hypothesis is rejected. The plants placed in no sunlight grew taller. No Sunlight grew 9.9 centimeters more than Full Sunlight.

Full Sunlight plants were fuller and stronger than No Sunlight plants. There are some systematic errors in my experiments that I would like to improve in the future such as adding more replicates so that my data is more reliable and more exact.

Error Analysis

Error Analysis- Since No Sunlight had 0 contact with the sun, water that was added to No Sunlight was never soaked up. Therefore there was always water in the plant which made it less strong and more fragile. In the future I would add less water to the plants and not water them everyday.

Works Cited

<https://www.thespruce.com/seeds-that-need-light-for-good-germin>

<https://sciencing.com/do-plants-grow-faster-in-light-or-da>

<https://www.thespruce.com/seeds-that-need-light-for-good-germin>

<https://www.farmersweekly.co.za/agri-technology/farmingfor-tomorrow/light-effects-plant-growth/>

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Images Cited

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