

INVESTIGATION PLAN

PROBLEM

Do sound waves affect the growth of plants?

HYPOTHESIS

My hypothesis is that sound waves will affect the growth of plants because of the vibrations that come from sound waves. I think that the plants in the noisy environment will grow faster than the plants in the quiet environment.

PROCEDURE

To begin this experiment, I will purchase two different types of plants from Pike Nurseries. The two different types of plants I will buy will be peace lilies and begonias. I will buy two of each so that I can have one of each in the quiet room, and one of each in the noisy room. I will put them in pots with a layer of large rocks at the bottom for drainage, and Miracle Grow indoor potting soil on the top. The volume of the pots will be approximately 6.5 L. I will be giving the peace lilies 400 mL of spring water every Friday, and I will give the begonias 400 mL of spring water every Monday and Friday. I will also mist them with spring water every day because both peace lilies and begonias like high humidity.

There is no control group in my experiment because I am simply comparing the growth of the plants in one environment, to the growth of the plants in a different environment. There isn't a way to have a "control" environment because it would just be comparing three environments instead of two. The variable in my experiment will be the environments that the plants will be in. The constant factors in my experiment will be the soil, pots, rocks, amount of water I will give every week, the amount of water I will mist every day, and the temperature of the room.

Every three days, I will take a measurement of the amount of growth from each plant in millimeters. Because plants are all slightly different heights, I will not include their original height with their growth measurement. I will record the

change in their growth, instead of their overall height. To get this measurement, I will find the tallest leaf or bloom on the plant and measure its height. This measurement will be the value I will compare my later measurements too. When I take my measurements, I will subtract the original measurement from the new measurement to find the amount of growth. This is the formula I will use to record my data: $measurement_2 - measurement_1 = amount\ of\ growth$ I will also record the number of blooms and the appearance of the plant (examples would be: healthy, average, sickly etc.).

CONCLUSION

If the growth of the plants in the noisy environment is at least 5 cm more than the growth of the plants in the quiet environment, I will know my hypothesis was correct. If not, I will know my hypothesis was wrong. If one type of plant grows better in the noisy environment and the other grows better in the quiet environment, I will know that my hypothesis's accuracy varies between different varieties of plants.

SAFETY

- (1) I will make sure that nothing ingests any part of my plants because they are poisonous to some animals.