# All about how simulated acid rain affects the growth of a controlled plant

# Intro paragraph

In the beginning, we were stuck trying to choose a Science Fair experiment but we knew we wanted to work with plants. We looked on Google for some ideas and learned about acid rain. After talking to one of our teachers, we got to the idea of testing how acid rain could affect the growth of a controlled plant for our experiment. This will be useful for us to know about how acid rain can affect the plants health.

# Background Research

To prepare for our experiment, we researched what type of plants grow in the winter in the desert. We found that Brittlebush, Parry Penstemon, Globemallow, Mexican Honeysuckle, Baja Fairy Duster, Desert Marigold, and the Pansy flowers are some of the plants that grow in the winter in the desert. We also researched and learned about acid rain. Acid rain began in the early 1950's because of air pollution. When pollution gets in the air, it mixes with the rain to make the rain more acidic. Acid rain is damaging to all life forms because when it gets into a pond, for example, it can kill fishes by making the water more acidic. Acid rain can also rust metal. For our experiment, we will simulate acid rain by using distilled water and vinegar.

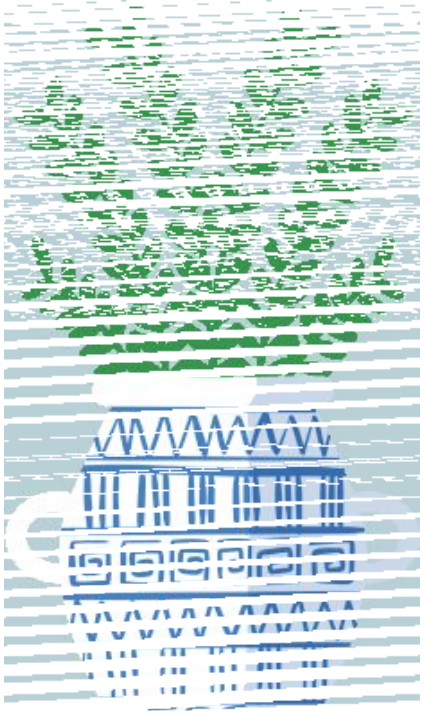
# Questions, hypothesis and variables.

Question: How does simulated acid rain affect the growth of a controlled plant?

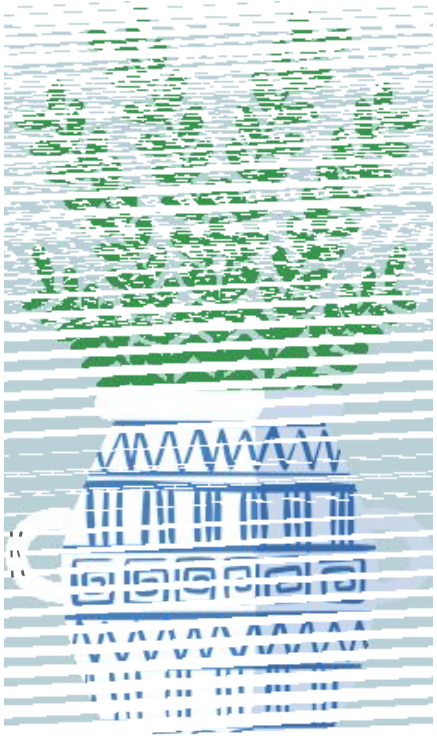
Hypothesis: We think the plant will die in a week because vinegar does not belong with plants

Variables:
IV: what we water the plants with (acid rain and tap water)
DV: how much the plant grows
CV: the number of sprays and where we keep the plants

# Materials



- Distilled water
- vinegar
- Spray bottles
- Labels
- blue and purple Pansy flower
- Funnel

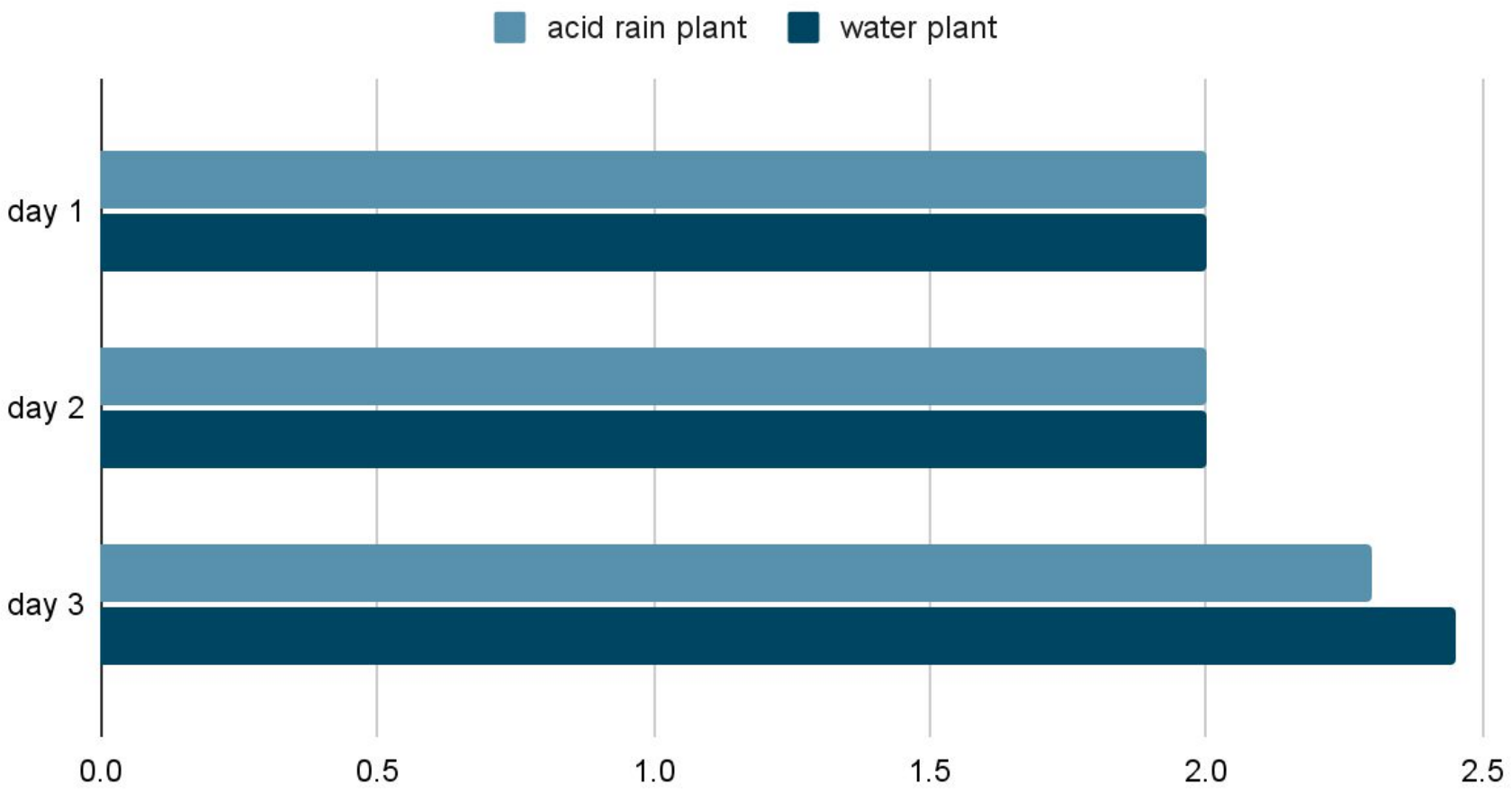


# Procedures

- Get materials
- Prepare your acid rain by mixing 1 tbsp vinegar and 1 cup of distilled water
- Put the acid rain in one spray bottle and tap water in the other spray bottle
- Label your bottles to show which one has acid rain
- Label your plants to show which one is getting acid rain or regular water
- Record initial measurements
- We water our plants every other day for a week
- Water your plants with three sprays from the spray bottle

# Results

- Our hypothesis was that we thought the acid rain would die in one week.
- The acid rain plant started to turn brown on day 4
- The regular water plant did not turn brown until day 5 when it started to wilt
- The acid rain plant grew 2.2 inches and the water plant grew 2.4 inches


acid rain plant
water plant
day 1
day 2
day 3
0.0
0.5
1.0
1.5
2.0
2.5

# Conclusion

Something we learned from our experiment was acid rain did affect the growth and looks of the plant. The plant started to look a little dry and the leaves started to crunch and turn brown which meant the roots were not ok. Something that went wrong in our experiment was that we skipped watering the plant for several days due to weekends and field trips. Additionally, we didn't measure how much water or acid rain we used when we directly watered the plant. This experiment is useful to the community because now they will know that extra nitrogen oxides in acid rain can affect the growth of the plant. Cars and power plants use gas that release nitrogen oxide into the air. Instead of driving gas powered cars we can walk or ride a bike or skateboard to school to reduce carbon dioxide in the air because then it can combine with the rain to make acid rain. Something that we could improve would be measuring how much water and acid rain we put in the plant and not skipping watering days.

# Pictures

Water plant

Acid rain plant

# Citations

N.A. (2026). *Acid Rain*. britannica kids
https://kids.britannica.com/kids/article/acid-rain/352700