Ants Defrosted

By: Sebastian B. Jordan L
Jordan B. Christian B.

Question

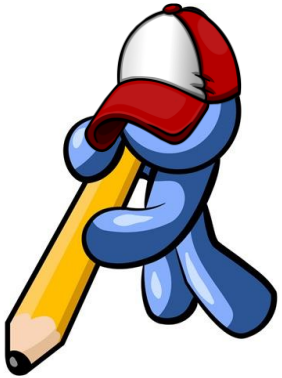
What will happen when the temperature of an ants' habitat increases or decreases?

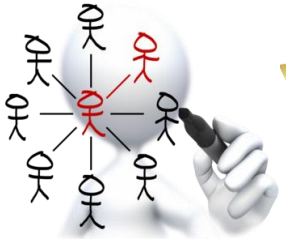
BACKGROUND RESEARCH

Ants become more active in warmer temperatures and more inactive in colder temperatures. From other sources we found that some ants will go underground and forage if a slight increase in celsius were to occur meaning that they would become less active. Without normal productivity, plants are affected negatively and humans depend on those plants. Ants eat the eggs of insects that are dangerous for a plant's health. This keeps plants healthy. With inactive ants in cold temperatures, the ants can't eat the eggs as efficiently as in hot temperatures. This will hurt the plant's health.

hypothesis

If we raise the temperature of the ants habitat, then the ants will move faster and create more ant holes, because ants move faster in the heat than in the cold and in normal temperatures, since they live underground and underground ıan above ground.





Variables

IV: Temperature of the ant's habitat (room, cold and hot temperatures)

DV: 1) Number of ant holes 2) Number of ants alive

Control Group: Ants at room temperature

Experimental Group: Cold and hot habitat temperatures

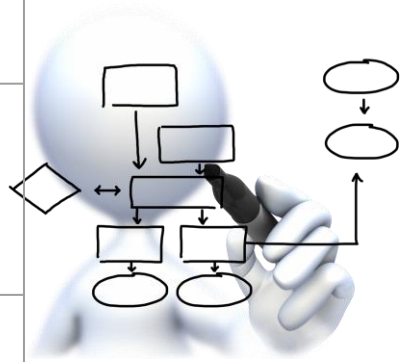
Procedure

1. Gather Materials.
2. Place ants in Mason Jar (10-15 ants in each jar).
3. Place one Mason Jar in a cooler (with ice or cold material).
4. Leave one Mason Jar out in the open.
5. Put the last Mason Jar in the rays of a heat lamp
6. Leave the jars in their areas for 24 - 48 hours in between measurements.
7. Measure the amount of holes, the holes' length, width, and height*
8. Do these measurements over 10 days.

*Measure in Centimeters (cm)

Data Analysis

Categories	1st Day (May 18th)	5th Day (May 22nd)	8th Day (May25th)
Room Temperature	3 Holes	3 Holes	3 Holes
Hot Temperature	2 Holes	0 holes	0 Holes
Cold Temperature	6 Holes	7 Holes	4 Holes



By the second day, many ants died. The cold ants had the most survivors.

Materials

10 - 15 Ants for each jar

Sand

A Fridge/Cooler

A Timer

A Heat Lamp

A Ruler (Needs Centimeters)

3 Mason Jars

Ant Chow Food

Data Analysis

Cold Jar:

1st Day

HOLES	LENGTH	WIDTH
Hole #1	8cm	1cm
Hole #2	3.5cm	.5cm
Hole #3	9cm	4.5cm
Hole #4	3cm	0.5cm
Hole #5	3cm	1cm
Hole #6	5.5cm	1cm

5th Day

HOLES	LENGTH	WIDTH
Hole #1	8cm	1cm
Hole #2	3.75 cm	.5cm
Hole #3	9cm	4.5cm
Hole #4	No longer	No longer
Hole #5	3 cm	1 cm
Hole #6	5.25 cm	1 cm
Hole #7	8 cm	0.5 cm

8th Day

HOLES	LENGTH	WIDTH
Hole #1	3cm	1cm
Hole #2	3cm	1cm
Hole #3	2cm	1cm
Hole #4	1cm	0.5cm

Data Analysis

Hot Jar: Day 1

Holes	Length	Width
Hole #1	5cm	1cm
Hole #2	3.5cm	.5cm

Day 5:

Day 8

Holes Remaining

Most ants died

Room Temp. Jar: Day 1

Holes	Length	Width
Hole #1	7cm	4cm
Hole #2	2cm	1cm
Hole #3	5cm	1cm

Day 5

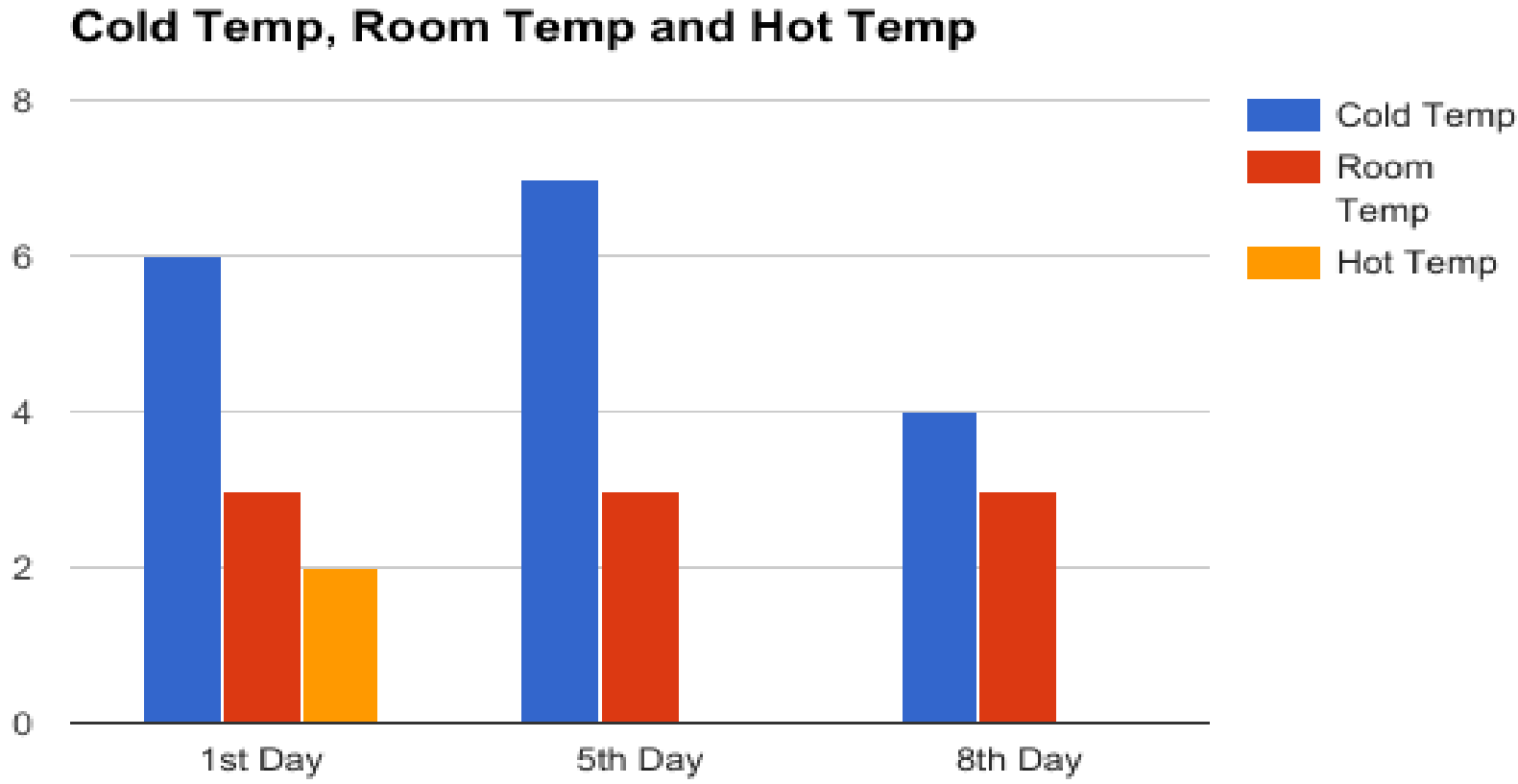
Holes	Length	Width
Hole #1	2cm	.5cm
Hole #2	6cm	5cm
Hole #3	2cm	1cm

No Holes Remaining

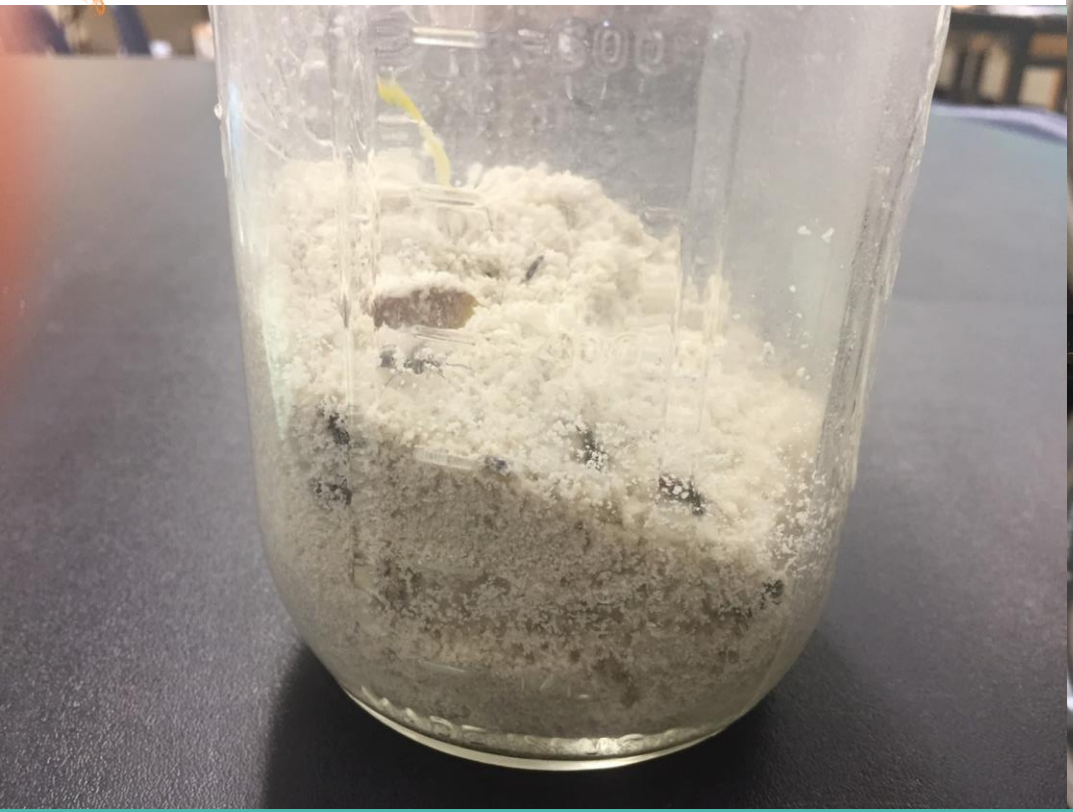
Most ants died so the holes did not change.

Day 8:

Holes	Length	Width
Hole #1	2cm	5cm
Hole #2	6cm	5cm
Hole #3	2cm	1cm


Cold Temp, Room Temp and Hot Temp
8
6
4
2
0
1st Day
5th Day
8th Day
Cold Temp
Room Temp
Hot Temp

Pictures



Results

The ants in the cold were the most active. The ants in the cold survived the longest and dug the most holes. Room temperature ants dug the second most, and the hot temperature dug the least holes. The cold ants also made the biggest hole across the whole experiment. Cold ants also moved the fastest while in the mason jars.

Conclusion

Our hypothesis was, the ants in the hotter temperature would be the most active, however our hypothesis was wrong. The ants in the cold dug the most holes. The ants in the hot dug the least holes. The ants in room temperature dug in middle ground. We have seen that the ants dug closer to the glass in the jar. We infer that the ants in the cold dug more holes because it is hotter underground to escape the cold temperatures.

Benefits To Society

So, we figured out that the benefit of changing the ants temperature to a cold temperature will make the ants work more, which would help plants. Humans depend on these plants so if ants are in hotter temperatures, they won't have normal productivity which is negative for plants. This will affect human life in the long run.