

Lab Report Template

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Project 4.2.3 Lab Report

Problem

Which soil texture has a high buffering capacity?

Hypothesis

Clay will have the highest buffering capacity. Compared to sand and loam.

Materials

- 3 spoons
- 1 rinse bottle
- 1 stir rod
- 2 250 ml beakers
- 4 9oz cups
- Lab Quest 1 or 2
- pH sensor
- 30ml graduated cup
- 1 HCL dropper
- 1 NaOH dropper
- Laboratory Tape
- Permanent Marker
- 2 50ml beakers

Procedures

1. Pour 100ml of Distilled water into a 9oz cup with 4 spoonful's of sand.
2. Stir for 2 minutes
3. Repeat for loam and clay.
4. Power on Lab Quest
5. Plug the pH sensor into ch1 on the Lab Quest.
6. Rinse off pH sensor
7. Place pH sensor in buffer solution
8. Record in Agriscience notebook
9. Add 5 drops of HCL
10. Stir for 30 seconds
11. Take pH sensor out of buffer solution and place in sand/water solution.
12. Repeat process with NaOH

Data Collection

What was added	Soil texture	pH level after 0 drops	pH level after 5 drops	pH level after 10 drops	pH level after 15 drops	pH level after 20 drops	pH level after 25 drops	Δ pH
Base	Loam	4.27	6.65	6.70	7.31	7.46	7.47	+3.10
Acid	Sand	5.98	3.97	3.59	3.42	3.29	3.20	-2.86
Acid	Clay	5.52	5.27	5.25	5.25	5.20	5.19	-0.33

Analysis of Results

The results of the experiment show what we initially thought was correct

Conclusions

Inferences that can be made now that the experiment is complete are we can infer that clay has a very high buffering capacity. The hypothesis was proved, it was proved by the amount of change clay had with the acid being added to it compared to loam and sand. Possible sources of error were we did not use both base and acids on any of the soil textures in our experiment.