Rock Permeability

Aim

To find out if soil with larger rock particles is more permeable than soil with smaller rock particles.

Underlying Environmental Science

Permeability is when liquids or gasses are able to pass through soil and rocks. Porosity is the amount of holes that go through the soils and rocks to create pathways. Permeability and porosity are both similar as they are about liquids and gasses being able to pass through soils and rocks. Plants take in water from the soil but how the water is taken in depends on the permeability and porosity. Plants will not thrive where the soil is very permeable as the top of the plants roots take in the most water. When farmers plant their seeds to grow crops they have to make sure the soil is not to permeable. This is because if the soil is too permeable the nutrient soils contain will be washed down through the soil. With the soil being to permeable gives the plants and crop less chance to survive. This is because the bottom part of the roots struggle to take up water and nutrients. If farmers do not get the crop yield right there will be a decrease in the amount of crops as some will not survive. If this dose happen the food supply will become smaller and if the crop yield gets to low the society will not have enough food so people may start to starve to death in serious situations.

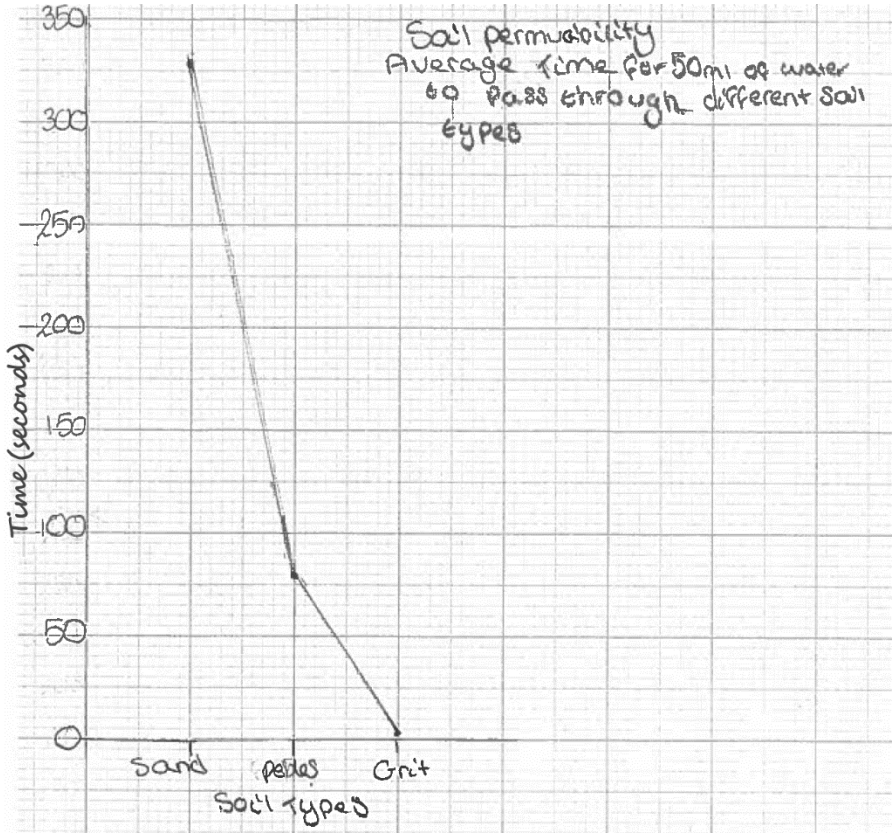
Description of Experiment

This experiment was completed by taking 3 different types of soils and put 50ml of water through them. The time was taken as soon as the 50ml started to drain through the different soil. Then the average was taken.

Experiment data

Soil Permeability			
	Sand (small)	Pebles(medium)	Grit(large)
1st attempt	324.99 seconds	95 seconds	3.45 seconds
2nd attempt	329.22 seconds	63 seconds	3.14 seconds
3rd attempt	331.66 seconds	81 seconds	3.23 seconds
total	985.87 seconds	239 seconds	9.82 seconds
Avrage	328.62 seconds	79.67 seconds	3.27 seconds

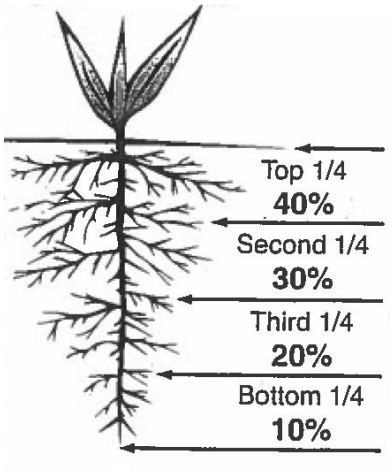
Graphical Presentation



Data from Internet

The data is information and diagram where plants take in most water.

Website – www.ag.ndus.edu



Analysis

My experiment investigates which type of soils are the most and least permeable. The internet data investigates which part of the roots do plants and crops take in the most water. Both of these are linked to permeability as it is very important for the crop and plants growth. This is important because if the soil is to permeable the plants and crops will not grow as well as nutrients are lost. This would leave us with a small food supply with not enough food to feed everyone.

Conclusion

From my experiment it can be concluded that soils with large rocks are the most permeable taking only 3.27 seconds compared to small rocks taking 328.65 seconds. This was the average time taken. From the internet data it can be concluded that the top part of the roots in plants and crops take in the most amount of water taking in 40% of the overall water. This is compaired to the bottom of the roots taking in the last amount of water only 10% absorbed. In conclusion I have found that soil with larger rock particles is more permeable than soils with small rock particles.

Evaluation

I could have used proper soil because the sand, pebbles and grit are not like real soil that plants and crops would really grow in.