
SOIL LAB AND PRACTICE LAB EXAM

1. Form a **hypothesis** for this lab. Remember, you are trying to investigate whether all soils retain water the same way.

Different types of soils will retain different amounts of water.

2. Write a detailed procedure explaining what we did to conduct the experiment. Be sure to mention all the materials that we used. The four types of soil we used were:

- Black earth
- Gravel
- Local soil
- Sand

You may wish to write your procedure as a list of steps. For example:

1. Set up a graduated cylinder directly underneath a funnel.
2. Line the funnel with a sheet of filter paper. Put several scoops of black earth into the funnel.
3. Pour 30 mL of water into the soil, and wait several minutes for it to pour out.
4. Measure how much water is collected in the graduated cylinder underneath.
5. Repeat steps 1-4 three more times for each of the other types of soil: gravel, local soil, and sand.

3. Summarize your findings in this table:

Soil Type	Initial Volume of Water (mL)	Final Volume of Water (mL)	Volume of Water Retained (mL)
Black earth	30	16	14
Gravel	30	26	4
Local soil	30	12	18
Gravel	30	18	12

4. Can you identify any problems with the experiment? Try to identify at least **two problems** that may have influenced the results.

1. We don't know how much soil was in each funnel. If there was too much or too little, it may have affected how much water can pour through.
2. The filter paper may have absorbed minimal amounts of water.
3. The soil may have been compacted, preventing water from flowing through it properly.
4. Some dust or other impurities may have absorbed some of the water.

5. Suggest a way in which the experiment could be improved.

We could test other types of soil to further investigate our hypothesis.

We could also have used better quality soil samples (where we know absolutely that they have not been compacted) and are free of dust and impurities.

We also could have waited longer. Perhaps more water would have poured out after more time.

6. Which type(s) of soil do you believe are most appropriate for growing plants? Explain your answer.

The local soil is probably the best soil for growing plants because it retained the most water. Plants absorb water from their roots, so they will need a soil that can retain its water well. The black earth may also have worked.

7. What would happen if you squeezed the soil together? Would you expect it to retain water better? Why or why not?

If the soil is compacted, it will make it a lot more difficult for the water to flow through. This means that the soil would retain more water than it normally should. Some of this water could collect on top as well.

8. Did your results support your hypothesis?

Each soil retained different amounts of water, so our hypothesis was **confirmed**.