

APES Soil Analysis Lab: Data Observation & Analysis Sheet

Preliminary Investigation

1. Description of location where your soil was collected (& attach drawing).

Part 1: General Observations of your Soil Sample

1. General Observations:

2. Abiotic Components:

3. Biotic Components:

Part 2: Soil Texture

Qualitative Test

1. What was your soil type? Justify your choice.

Quantitative Test

2. Height of column: _____ cm, _____ 100 %

Silt: _____ cm, _____ %

Sand: _____ cm, _____ %

Clay: _____ cm, _____ %

3. What was your soil type according to the soil triangle (fig 9-1)?

4. How does the answer above compare to your qualitative test?

5. Is this soil type consistent with the results from the percolation test performed in part 6 (p.73)? Describe.

6. Class comparison: Which areas of campus were the most...

Sandy:

Silty:

Clay-like:

7. Hypothesize why the soils are the way they are. How were they formed?

8. Attach a map of campus & color code soil types by area using data from all APES class data.

9. Were there plants growing in or very near your soil sample?

Were similar plants growing in other areas with the same soil type as your sample?

Part 3: Soil Moisture

1. Determine % water, by mass in your sample:

Mass of aluminum tray only: _____g

Mass of tray + pre-dried soil: _____g

Mass of tray + dried soil: _____g

Mass of water lost: _____g, _____% of sample

2. Compare the soil moisture of your sample to soil texture results in part 2.

3. Is there a pattern /correlation between soil moisture & texture for the class? Describe.

Part 4: Percent Organic Matter

1. Mass of empty crucible: _____g
Mass of crucible + dry soil: _____g
Mass of crucible heated soil: _____g
% organics in sample: _____%
2. Why is it unnecessary to measure the mass of the soil alone?
3. Discuss 3 reasons why organic materials are essential to soil.

Part 5: Soil Porosity

1. volume of soil: _____g
volume of water used: _____g
porosity: _____%

Part 6: Soil Dry Percolation Rate

1. & 2. Complete table with your measurements & calculations of percolation rates.

	Sand	Clay	Your Sampe
Sample Area			
Time			
H2O Volume (ml)			
Percolation Rate			

3. Discuss any patterns you found in your percolation rate values.

**Go back to part 1 & answer question #5.

Part 7: Berlese Funnel

1. Draw any organisms collected in your petri dish on attached paper:
2. What role do these macroinvertebrates play in your soil?

3. Compare the organisms you found with other groups in the class. Describe what you saw.

Part 8: Soil Fertility Analysis

1. pH:_____ Nitrogen:_____
- Phosphorus:_____ Potassium:_____
2. Which nutrients are low in your sample?

3. What is the ideal pH range for the types of plants found in your sample area?

Did the plants growing in your sample area look healthy? Is this observation corroborated by your test results? Explain

Follow-up Investigation

Remediation: What did you do or add to your soil sample before planting?

Conclusions: On the attached paper, answer questions 1-5 on page76 of your lab handout.

***Use this page for drawings of soil site and macroinvertebrates collected,
answers to conclusions questions, etc.***