

# Which Soil Do We Choose ?

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Institute: ICASE

Country: UK

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**Subject:** Science

**Grade level:** 8-9

**Objectives/competencies:** Students are expected to be able to:

- Seek and select appropriate information related to the study of soil, from the books, computers networks and web pages.
- Explain the advantages and disadvantages of different types of soil.
- Explain density, adsorption and the various properties of soils.
- Put forward a plan of how the density of soil can be determined.
- To cooperate with partners in the group in undertaking an experimental investigation.
- To design and carry out experimental determinations in situ and in the laboratory.
- Decide, with reasons, which field Mr. Ground should buy.

**Curriculum content:** Characteristics of soil

**Kind of activity:** Library search, field visit, laboratory investigation, group discussion to make a justified socio-scientific decision

**Anticipated time:** 4 lessons plus 1 field visit

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## Student Guide

### Scenario

Mr. Manuel Ground wants to buy a little field on the outskirts of the city and to use it as a vegetable producing farm. He has received several offers. However he does not know which one to choose because he hardly knows the soils characteristics for each place.

As Mr. Ground lives next to the school, he inquired whether the students there can carry out a scientific study of the soils so that he can be better able to determine which land to purchase.

## Student Tasks

1. Seek from different sources (as books, computers networks, web pages, etc.) information about the properties, classification and techniques for the analysis of soil.
2. Analyse the information obtained so as to (a) become familiar with the different types of soil and (b) how to test for these soils.
3. Plan techniques and procedures for sampling the different soils and testing them.
4. Work in groups to organise a field visit to different sites (each group visits a different site) and determine the equipment required.
5. Undertake a field visit (each group collects soil from a different site) to:

Undertake analyses in situ on:

- \*Soil pH
- \*Temperature of the soil and environment.
- \*Climatic observation.

Collect samples of the soil -in foil or in cylindrical recipients-

- \*Description of the place where the samples are taken.

6. In the laboratory and in groups, analyse the soil samples for:
  - \*Texture.
  - \*Permeability.
  - \*Content of water.
  - \*Porosity.
  - \*Apparent density.
  - \*Interaction water-soil.
  - \*Water available for the plants.
7. Put forward your findings in the form of tables and comparative graphs. Write a report classifying the soils analysed.
8. Discuss the results obtained with other groups and arrive at a general conclusion as to which land Mr Ground should buy.
9. Determine how best to communicate the results to Mr Ground.