# Studying soils on South Penquite Farm

**The soils on South Penquite Farm vary a great deal. Some are well drained whereas others are waterlogged. Some are shallow whereas others are deep. Some are much more fertile than others.**
**Follow these instructions to investigate the soils on the farm.**

## Investigating the depth of soils across the farm

**Key Questions**

- **How does the slope angle affect the soil depth? Are the soils deeper on the gentler slopes?**
- **Is the soil deeper where the plant cover is more dense?**
- **How have people affected the depth of the soil?**
- **Does the soil change in colour and texture from the surface downwards?**

**Methods**

1. **Start in the north of the farm in Stepfield. Be careful as this is near the river and is quite steep. Gradually work southwards through Crooked Park, Broad Lane, Harper's down, Long Park, Bounda park and Town Meadow. You will be doing a transect across the farm.**
2. **Stop every 50 metres and record information about the soils on the following table:**

| Site Number | Slope angle and shape | Vegetation and land use | Depth of soil measured with auger | Colour of soil and how it changes with depth | Texture of soil. Is it stony, sandy or clay? | Organic matter. How much humus is in the soil? |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

3. **Collect soil samples at each site. Scoop up some soil- a level trowelful is plenty- and put in a freezer bag. Seal the bag to prevent loss of moisture. Write identification details on the outside in marker pen.**



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**Follow up work**

1. **Draw a graph to show the link between soil depth and slope angle. Is there a link between them? Does the soil become deeper on the gentler slopes?**
2. **Does the soil change in colour as you go down from the surface? Does it become lighter or darker? Does it become more or less stony? Is there more or less organic matter?**
3. **Are the soils deeper in the fields used for farming? Are the soils deeper on one side of a wall than the other? Can you explain this?**
4. **Are there any places where the soils are very wet? What would cause this?**
5. **What is the effect of livestock on the soils on the farm? What happens to the soil near the farm gates?**
6. **In your opinion, which are the best soils that you have seen on the farm? Why is this?**
7. **Where on the farm is it unsuitable for livestock to graze?**
8. **Why do you think that there are no crops grown on the farm?**

**Summary**

**Explain why the depth of soils on the farm varies so much. Give as many reasons as possible.**



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## Recording Sheet for Soil Samples

| Site | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Location | | | | | | |
| Slope angle in degrees | | | | | | |
| Aspect | | | | | | |
| Vegetation/ Land use | | | | | | |
| Depth of soil in cm | | | | | | |
| Colour of topsoil | | | | | | |
| Colour of subsoil | | | | | | |
| Layers/ horizons | | | | | | |
| Texture of topsoil | | | | | | |
| Texture of subsoil | | | | | | |
| Moisture content | | | | | | |
| Infiltration rate in cm per minute | | | | | | |
| pH | | | | | | |
| Organic matter | | | | | | |
| Soil temperature C | | | | | | |
| Ground temperature C | | | | | | |



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