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# Soil texture

Pick up a handful of soil and you can feel how fine or coarse it is. That feel comes from the size and relative proportion of mineral particles in the soil, and is known as soil texture. The particles that make up soil are categorized into three groups by size: sand, silt, and clay. Sand particles are the largest and clay particles the smallest. (Fig.1) The relative percentages of sand, silt, and clay are what gives soil its texture.

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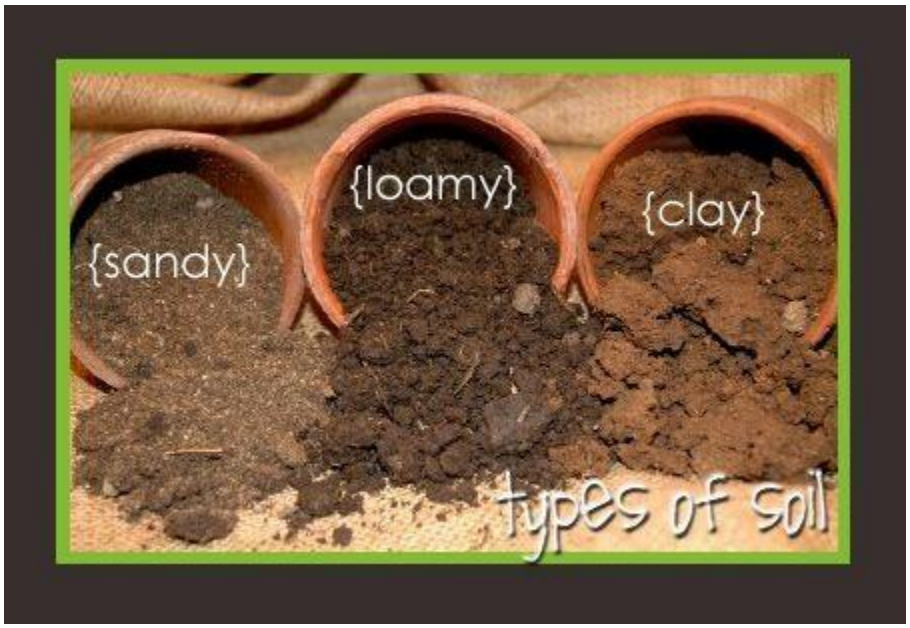


| Particles | Actual Size | Diameter in millimetres |
|---|---|---|
| Coarse sands | | 0.2 to 2.0mm |
| Fine sands | | 0.02 to 0.2mm |
| Silt | Too small to see | 0.002 to 0.02mm |
| Clay | Too small to see | Less than 0.002mm |

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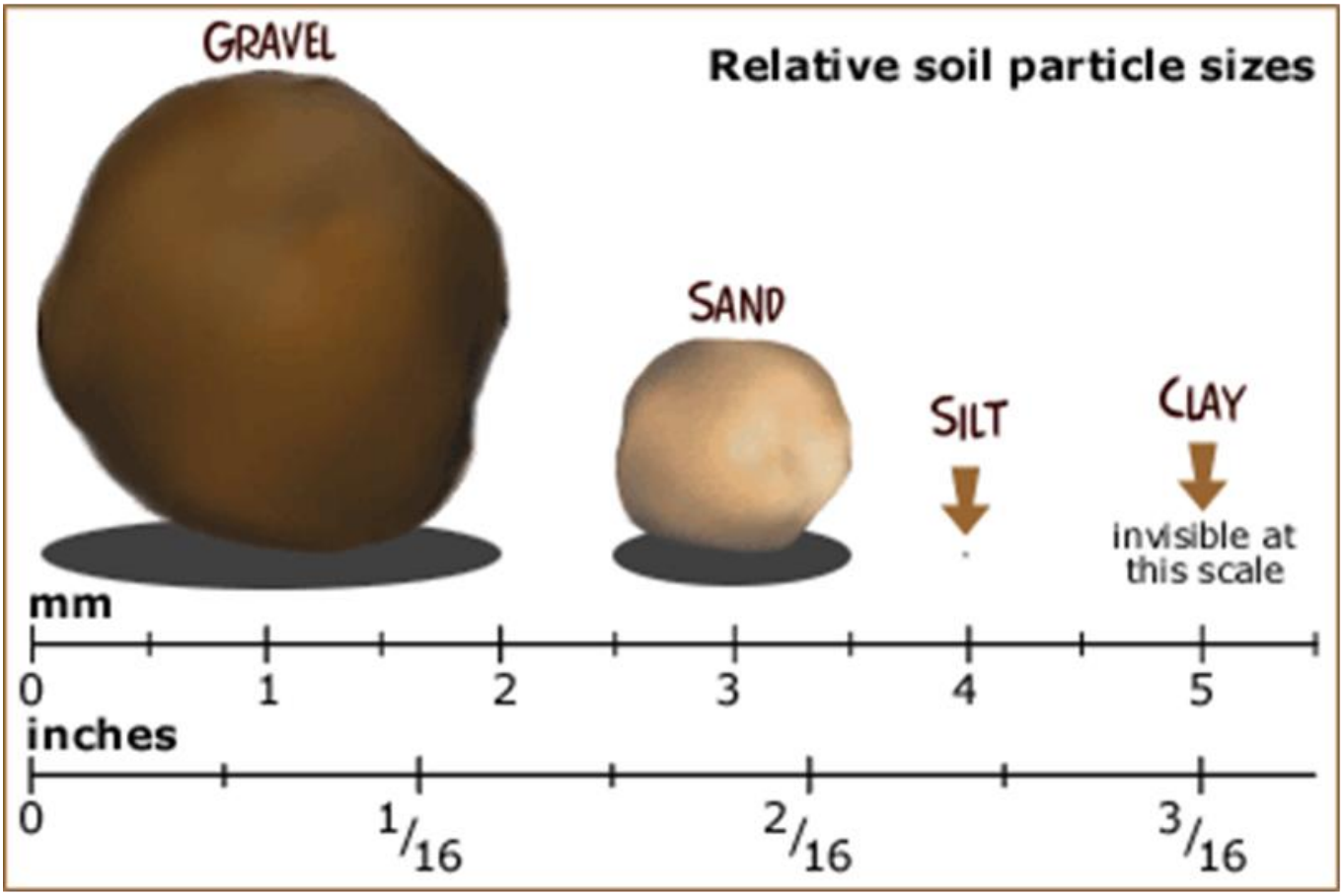


The Dirt on Soil: https://school.discoveryeducation.com/schooladventures/soil/name_soil.html

## Water content

Water content or moisture content: is the quantity of water contained in a material, such as soil

- **Bound Water :** Bound water is water that is physically trapped within soil partical
- **Free Water :** this water not bounded by colloidal material which is affected by gravity so tend to drain quickly.

- **Water activity (Aw) :** is the best determinant of the water requirements of microorganisms. It is the availability of water for reaction in a substrate.

**Direct methods measurement**

Water content can be directly measured using a drying oven. Gravimetric water content, *u*, is calculated via the mass of water

It is the direct method of measuring the moisture content of soil.

1. Samples taken from the field,
2. weighted, dried at 105°C for about 24 hours till constant
3. weight is obtained again after drying.
4. The difference in weight between the wet (WS1) and oven dry (WS2) samples gives the moisture content in percentage.

$$Pw\ (\%) = \frac{WS1-WS2}{WS2}$$

The method is simple and reliable, but, time consuming and sampling is destructive.