

Dirt Shake Activity

Determining Soil Types

Students will separate soil samples into particle layers, in order to determine soil composition and classify the soil layers as sand, loam or clay. This activity will enable students to:

- Identify layers of soil
- Recognise the difference between sand, clay and loam

Equipment:

- Soil – this activity will not work with potting soil. Soil texture is an evaluation of the mineral component of soil, potting soil is mostly organic material.
- Clear plastic or glass jar with lid – jam jar size is ideal.

- 1 Place 50 – 100mm of soil into the jar, (remove rocks, roots, and anything else that is clearly not soil from samples and break up any large clumps before beginning.) Measure the level of soil and record the measurement as “total soil.”
- 2 Add water until the jar is $\frac{2}{3}$ to $\frac{3}{4}$ full. Make sure the lid is on tight.
- 3 Shake the jar vigorously until all the particles have been separated by the water, about 2 minutes. Set the jar down and allow the soil to settle.
- 4 After 1 minute, measure the amount of soil on the bottom of the jar. Record this measurement as the sand fraction.
- 5 Allow the jar to settle for 3 or 4 hours, then measure again and record the level. This second layer indicates the silt fraction of your soil.
- 6 The remaining clay particles may take as long as a week to settle depending on the composition of the sample. However, you can use the measurements you already have to determine the amount of clay in the soil.

(Simply subtract the combined sand and silt measurements from the total soil measurement. Organic matter will float on the surface of the water. Generally it is a small component that won't affect your measurements, but if there is a floating organic layer large enough to measure, subtract its measurement from the total soil before calculating the clay fraction and before moving on to calculate percentages.)

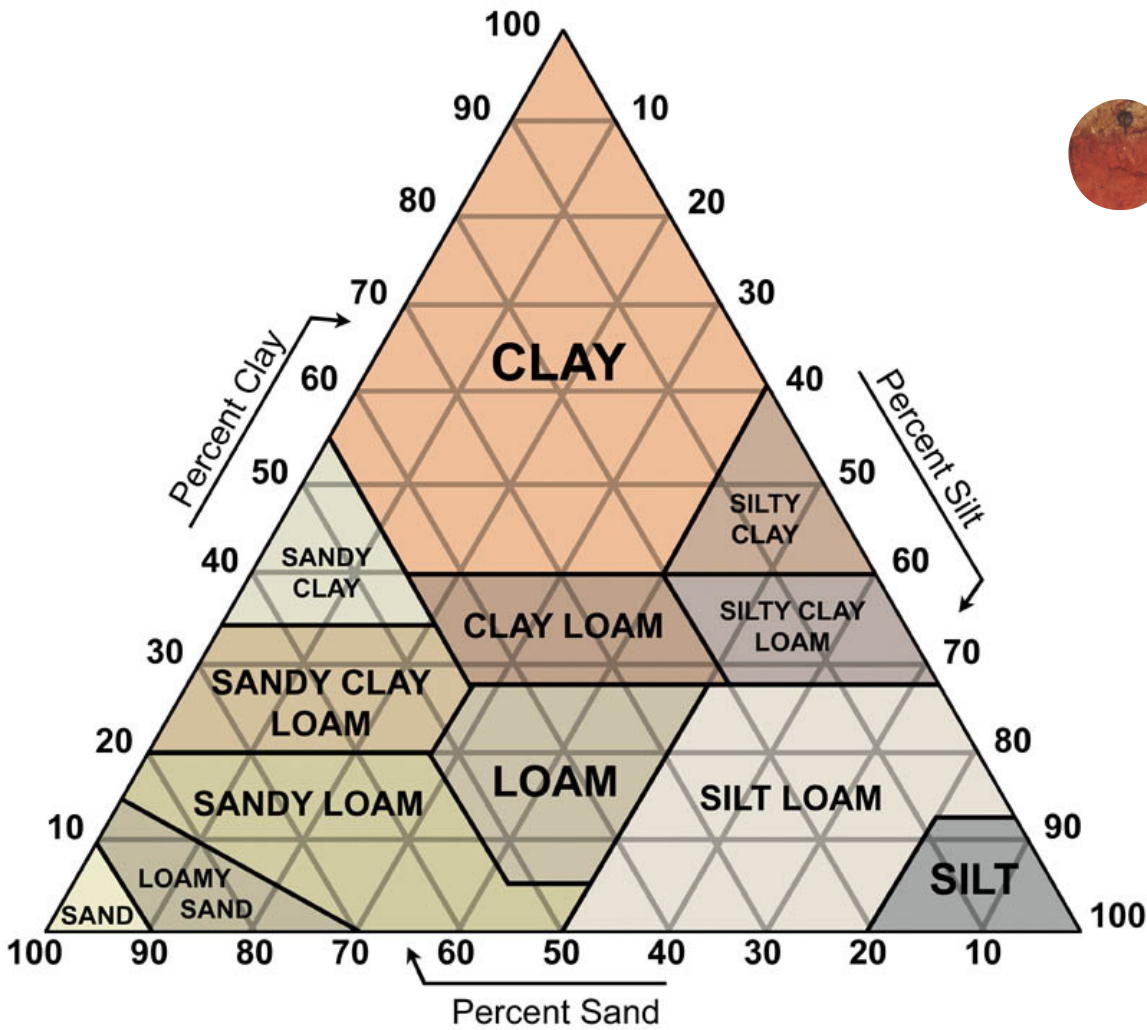
- 7 Now convert the measurements into % for example:

		%
Total Soil	100mm	
Sand Fraction (First Layer)	50mm	50%
Silt Fraction (Second Layer)	25mm	25%
Clay Fraction (Total Soil - Sand+Silt)	25mm	25%





8 Once you know the percentages, use the Texture Triangle to determine the name of the soil type.



Information source:

cmg.extension.colostate.edu/volunteer-information/cmg-gardennotes-class-handouts/#soils