

Raingarden Site Analysis: Soil Analysis Experiment

Overview: Building a raingarden starts from the ground up, literally. Soils vary in pH, drainage and fertility. Knowing your soil's complexity will ensure your raingardening experience has a great start. Some soil types make poor raingarden soils and it will have an impact on the work required to create a raingarden.

Soil analysis: Identify the lawn's soil type as sandy, silty, or clayey. Sandy soils have the fastest infiltration; clayey soils have the slowest. Since clayey soils take longer to absorb water, raingardens in clayey soil must be bigger than rain gardens in sandy or silty soil. If the soil feels very gritty and coarse, you probably have sandy soil. If your soil is smooth but not sticky, you have silty soil. If it is very sticky and clumpy, you probably have clayey soil.



Types of Soil and What They Mean

- **Sand and loamy soils** drain well
- **Clay soils** can become waterlogged
- **Compacted soils** are found on developed land where soils were compacted by heavy construction equipment. Compacted soil will need to be dug up and loosened for proper drainage since even sandy soils aren't able to properly absorb rainwater if they are compacted.

Optional: As a warm-up exercise, practice determining soil type with samples that are clearly comprised of sand, silt, or clay.

Test Your Soil

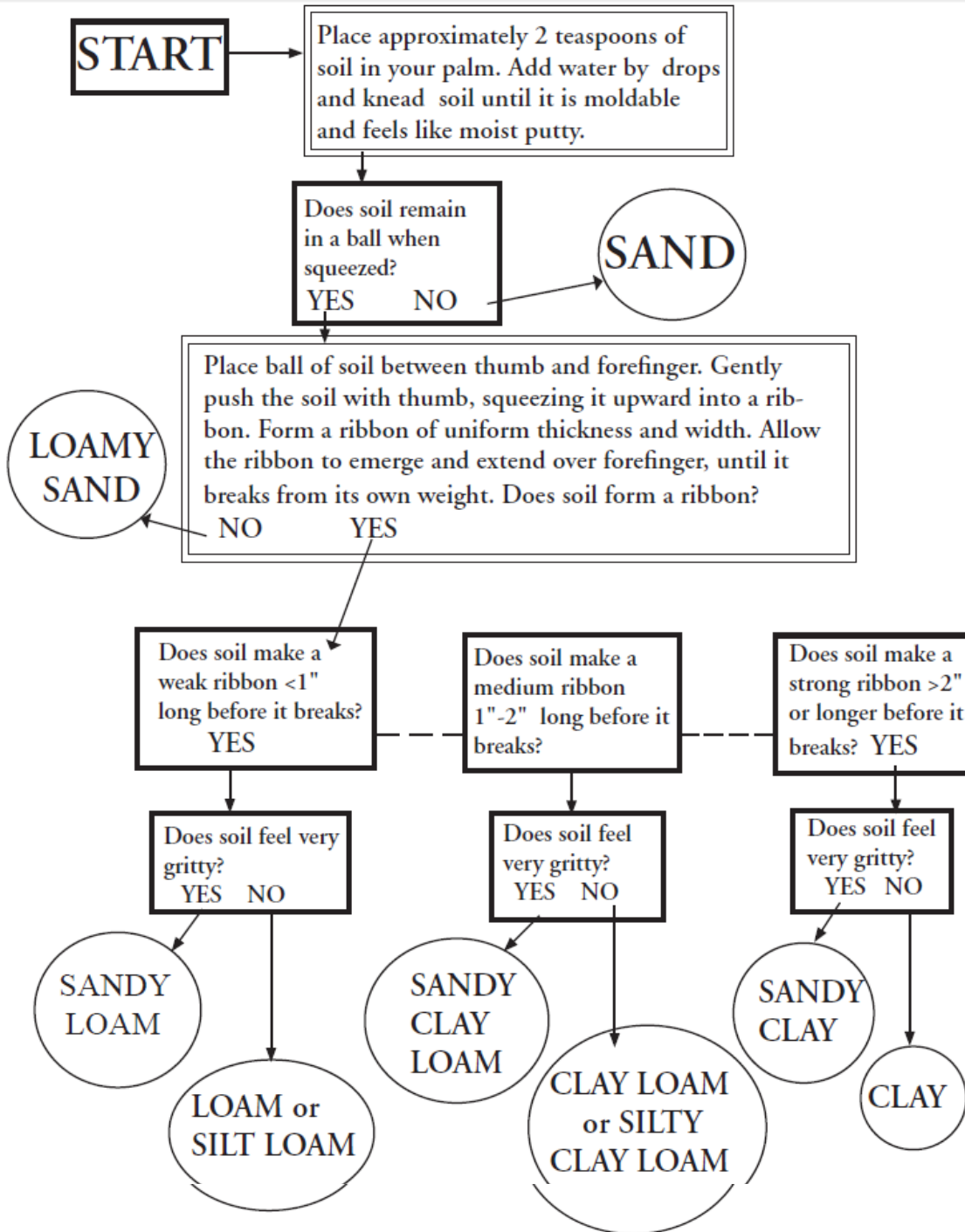
1. Collect soil samples from proposed rain garden locations on the school grounds.
2. Collect one and one-half cups of soil per sample for your classroom.
3. Place about two teaspoons of soil in your hand.
4. Spray enough water from a spray bottle to moisten the soil to form a ball.
5. Next, use the **Soil Texture Feel Test Key** to determine soil type. The step-by-step directions on the key will guide you through the process of soil identification.

**If your site has too much clay you will need to remove the clay soils and amend the soil with a 50% sand and 50% compost mixture. Schools can contact Olmsted County and sand mining operations to request compost and sand. Often they are willing to donate to school raingarden projects.*



Soil Texture Feel Test Key

Begin at the place marked “start” and follow the flow chart by answering the questions, until you identify the soil sample. Please note that soils having a high organic matter content may feel smoother (siltier) than they actually are.



Source: Adapted from WOW!: The Wonders of Wetlands, Environmental Concern Inc.

