



ANSWER KEY

Exercise: 1

Instructions: Follow the directions below to do this activity.

1. Fill clear plastic containers or glass jars with samples of sand, silt, clay and loam. It would be interesting to add to your collection samples of soil from various parts of the country, gathered during a vacation trip. Make labels for the containers, noting all the classification and location information about each sample as discussed below.

2. Soils are made up of three kinds of particle groups or separates, as they are called. These separates are sand, silt and clay. But no soil found in nature consists completely of one of these separates. It is always a combination of separates. These combinations are called classes. You will want to try to identify the soil class to which each of your samples belongs. In a laboratory, a scientist would add a large amount of water to the sample, the grains would separate out and the proportions of sand, silt and clay could be figured. You will have to depend on cruder classification methods. The best way to do it is by texture. To determine texture, you must moisten the sample and rub it between your fingers. You can identify the sample by comparing the way it feels with the list of classes below:

Sand:

A mixture but largely sand; coarse and gritty to the touch; separate particles are easily seen; doesn't hold together when moist but falls apart in your hands as separate grains.

Loamy sand:

Holds together a little when slightly moist.

Sandy loam:

Holds together when moist but hardly makes any smear on your fingers.

Loam:

Makes a rough smear and feels sandy.

Silt loam:

Makes some smear when moist but doesn't rub out thin like clay before becoming rough and broken.

Clay loam, Silty clay loam and Silty clay:

Makes smears midway between silt loam and clay when moist; are easily crushed fine between fingers when dry; particles are difficult to distinguish.

Clay:

A mixture but largely clay; sticky and plastic when wet, and hard and difficult to crush when dry; when moist and rubbed between fingers, makes a smooth, thin, continuous smear; separate particles can be seen only under microscope.

3. You will also notice differences in the colors of your samples. They may range from black through brown, red, yellow and light gray to white. Colors do not necessarily have any connection with soil classes but you certainly should add color to the class name so that samples are described as “red sandy loam” or “white clay,” etc.

4. Finally, add the name of the town or city near which the soil was found. Scientists use these place names to describe soils, so you might read about “Miami sandy loam” or “Barnes clay loam.”