

# DIG IT!

**The Scoop on Soil.** Soil is a complex mix of ingredients: minerals, air, water, and organic matter—decaying remains of once-living things and countless organisms.

**Why is Soil important? You need it for...**



**FOOD**



**CLOTHES**



**AIR & WATER**



**BUILDINGS**

## How does soil become soil?

There are many different soils in the world. All soils are different because of where and how they formed. And, soils are always changing!

## C L O R P T | 5 factors of soil formation



**CLimate**



**Organisms**



**Relief**



**Parent material**



**Time**

Climate is weather over a long period of time. Soils develop fastest in warm, moist climates and slowest in cold or arid (dry) ones.

Plant roots spread, animals burrow, and bacteria eat, changing how soil forms. These and other organisms help breakdown soil particles.

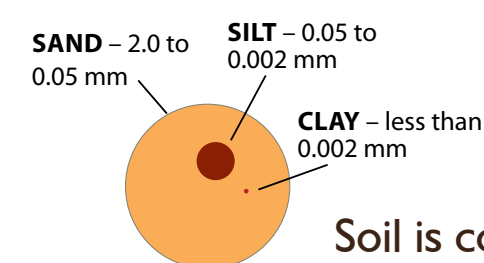
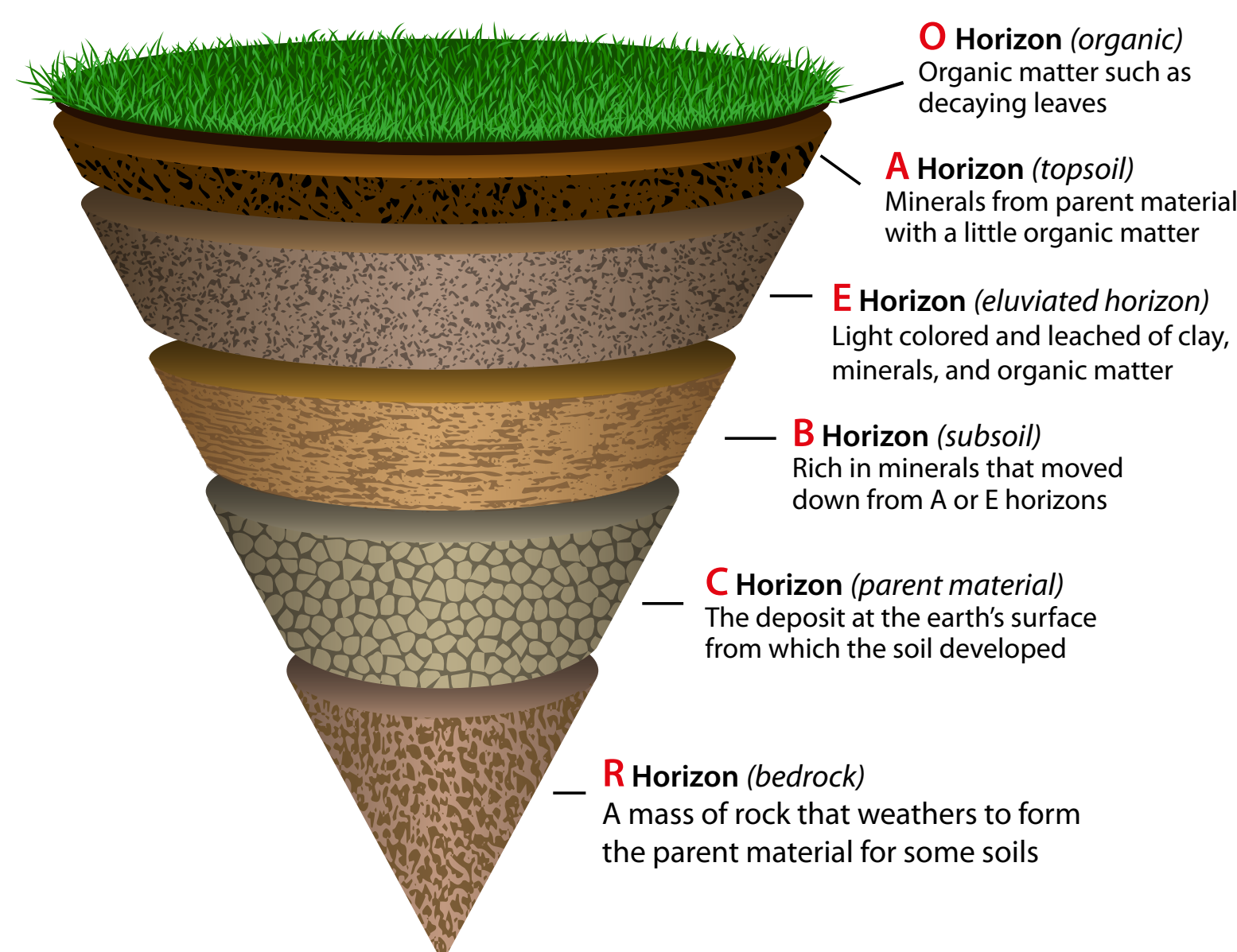
Relief shows the shape of the land. The direction a hill faces makes a difference in how much sunlight the soil gets and how much water it holds. Deeper soils form at the bottom of a hill because gravity and water move soil particles downhill.

Parent material describes the properties in which soil forms. Soils from weathering rock are different than soils forming in a dry lake bed.

Older soils differ from younger soils because they have had longer to develop.

## Dig Deeper!

Soils come in many colors—from blue-grey to brown to red. All soils have layers called horizons. These horizons may look different and they tell the story of how a soil formed over time. Together the horizons are called a *soil profile* (photo left).



Soil is composed of different-sized particles: sand, silt, and clay.

### Dirt is not soil.

Dirt is soil particles that are out of place—no longer part of the soil on the ground. It doesn't have the properties that provide nutrients to grow food and filter our water.



## CHANGE | 4 processes

**Additions.** Rain adds water. Dust adds minerals. Animal wastes add organic matter and nutrients. Humans add fertilizers.



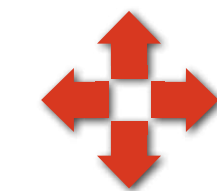
**Losses.** Water in soil evaporates. Nutrients are taken up by plants. Soil particles wash away in a storm. Organic matter may decompose into carbon dioxide.



**Translocations** (when things move within the soil). Gravity pulls water down from top to bottom. Evaporating water draws minerals up from the bottom to top. Organisms carry material every which way.



**Transformations** (when things change into other things). Dead leaves decompose into smaller pieces. Rock weathers into soft clay. Oxygen reacts with iron, "rusting" the soil to a reddish color.



Soil Profile

This is just the beginning of the exciting world of Soil!

[soils4teachers.org](http://soils4teachers.org) | [soils4kids.org](http://soils4kids.org)



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