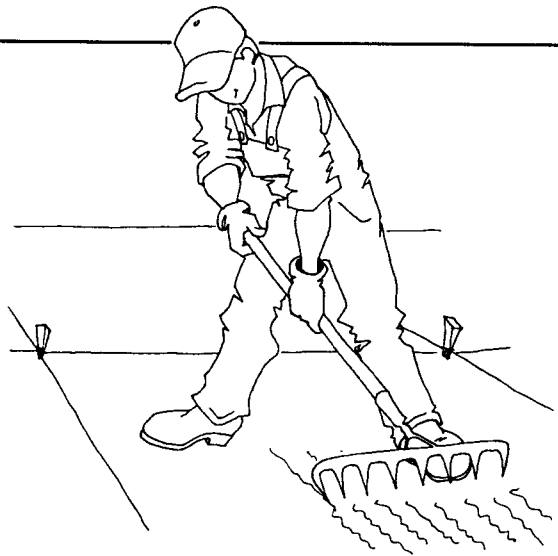


## STEP ONE

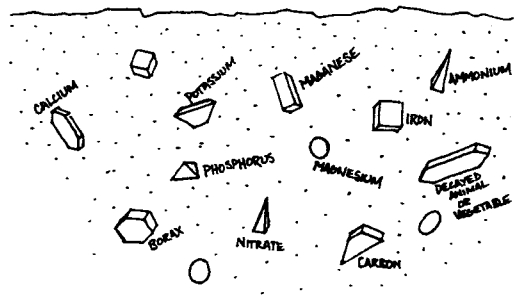
### Soil and Soil-Bed Preparation



### About Soils

Soils are primarily Inorganic. Soils are made mostly of basic elements (such as potassium, phosphorus, calcium, iron, carbon, manganese, magnesium, etc.) or combinations of elements (such as ammonium nitrate, borax, etc.). All of these materials are inorganic.

In addition, some soils may have organic materials (from decayed vegetation and animals). A loamy soil has more organic material than clay or sandy soil.

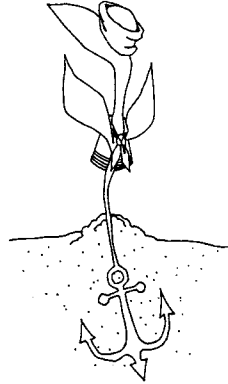


The chemical composition of a field of rocks may be no different than that of the finely ground soil surrounding them. In fact, a bag of mineral-based fertilizer was probably once rock-size pieces of essential minerals—minerals that have been pulverized and combined in formulas useful for plant growth. These inorganic minerals are no different from the soil to which they are returned.

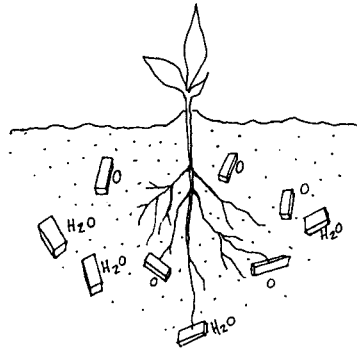
Since plants will grow in most any soil, it is usually the size of soil particles that is more important than the makeup of the soil.

## Soil Provides 5 Essential Functions:

**1** Soil provides anchorage and protection for plant roots.

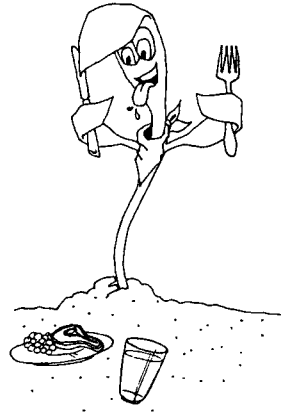


**2** Soil holds water and oxygen for plant use.



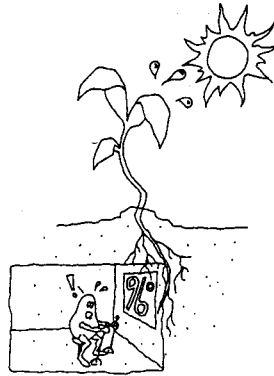
**3**

Soil has minerals which plants need for food. Soil also holds and stores additional minerals that may need to be applied to it.



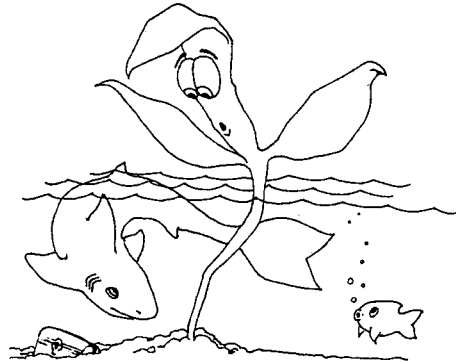
**4**

Soil acts as a temperature regulator in hot weather.



**5**

Soil affords drainage for plant roots. If soil is too hard and compact, it will not drain.



Crops fail when one or more of these five essential functions is missing.

Soil Function	Problem	Possible Remedies
<b>Provide anchorage</b>	Soil too coarse; will not hold seeds or seedlings	Remove rocks; break up clods of soil; add loose sandy soil, compost, grass, leaves, etc.
<b>Hold water &amp; oxygen</b> (see Step 3, page 33)	Water puddles on top.  Water soaks into ground too quickly.	Too much hard, claylike soil—loosen with sand, compost, leaves, etc.  Add fibrous, water-holding materials such as leaves, sawdust, compost, peat moss, etc.
<b>Store minerals</b> (see Step 4, page 39)	Soil doesn't seem to produce healthy plants.	Add supplementary minerals (fertilizer).
<b>Regulate temperature</b>	Seeds not germinating, or plants developing too slowly.	Make sure garden has sufficient sunlight. Black plastic helps heat the soil.
<b>Afford drainage</b>	Ground allways seems too moist and marshy. Water sets on top of ground and won't soak in.	Garden rows may need to slope more. Make soil looser and more absorbant by adding coarser materials to it. If ground water is too near the surface, consider a different location.

