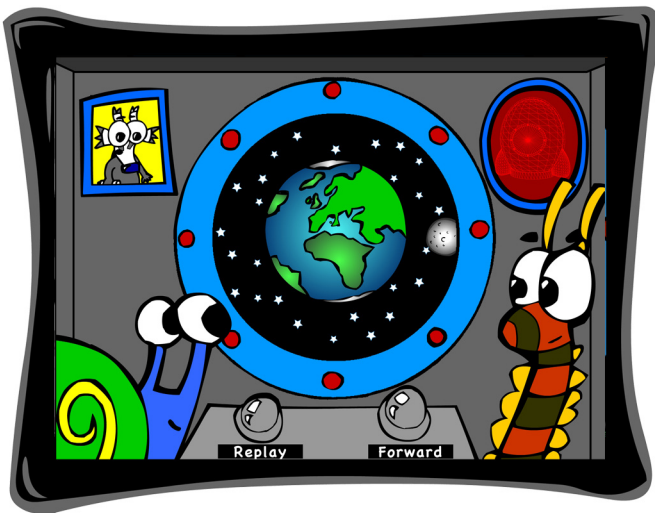




Topic 11: Soils and Health

Introduction Soils can affect our health in many ways. They contain the nutrients that plants need to make our food. Most soils contain a good balance of nutrients but there are some that may contain too much of a particular nutrient or too little. A few soils around the world lack enough nutrients so the local people that feed off the land have a poorly balanced diet and their health suffers. Soils are thus very important in providing us with food for a balanced diet. Sometimes soils can become polluted by human activity, such as by some types of mining, and we have to be careful that this does not harm our crops, our animals, and ourselves.



By far the majority of our soils are very healthy and able to provide the ideal environment for plant and crop growth, for grazing animals and for humans.

A few of our soils have been polluted by mining of coal and other minerals, by various industrial processes, and by additions of unwanted waste.

A few other soils have developed with some in-built deficiencies and occasionally an overabundance of certain elements, which can cause health problems. This often relates to the type of rock that formed the parent material.

Just think when you look at your garden soil how important soils are to our overall health.



Soils and Our Nutrient Supply

Plants rely on the soil to provide them with nutrients and it is these soil nutrients that enable them to grow and be healthy.

Animals take much of their food from eating growing plants and rely on the nutrients in these plants to sustain them.

Humans eat both vegetables and meat. They rely on eating these to keep themselves healthy. Much of the food you eat for your school dinners will be from animals and plants that have got their nutrients from the soil.

Just think when you get ready to eat a nice lunch or dinner that many of the nutrients in them will have come from the soil.



What Nutrients Are There In Soils

The soil contains 18 of the most important nutrients that are needed for health and growth. REMEMBER, you do not only get your nutrients from tablets out of a bottle, you get most of them from plants and animals that get their nutrients from the soil.

There are at least 11 chemical elements in the soil which if present in insufficient amounts in the soil can lead to major health problems. On the other hand, in some soils too much of some elements may be present, causing toxic conditions or poisoning of the system.

Sometimes it is necessary to add nutrients to the soil, as in farming and gardening, to ensure the soil nutrient supply is maintained.



Did you know that in ancient times when the Roman army conquered the city of Carthage, they ploughed salt into the fields to stop any crops being grown.



Variation in Natural Flora and Fauna

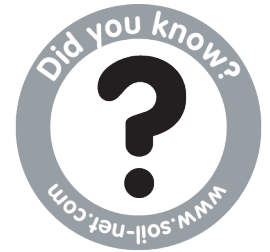
Soils vary in the type and amounts of nutrients they hold from region to region and sometimes from field to field.

Some plants need plenty of calcium and therefore will grow only on soils rich in calcium, like those on chalk rock.

Other plants, such as heather, need more acid and would be unable to grow in lime-rich soils. The fact that our soils are so varied means that there are conditions to suit a wide variety of plants and crops.



Most of our vital nutrients are to be found in the soil and these are passed into the food we eat.

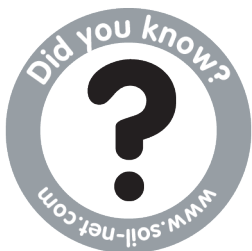


Not All Elements Are Healthy

Some elements in soils can create health problems in humans and animals. Fortunately these situations are fairly rare. For example, very acid soils can contain more active amounts of aluminium. Long term uptake of aluminium in humans has been linked with Alzheimer's disease and with neurological problems.

Lead occurs in toxic levels in some soils, often as a result of pollution during mining operations. High levels entering the body by food intake can lead a several serious forms of illness.

Cadmium from the soil accumulates in food plants and this is the main way cadmium enters the body. Cadmium has been associated with damage to kidney functions.



Much of the wonderful variability of nature relates back to the soil.



Contact With Unfriendly Soil Organisms

It is important to realise that soils contain numerous organisms, a few of which can be harmful to humans and animals.

The soil contains numerous bacteria, fungi and viruses, and it is a good idea to wash areas of skin abrasion carefully.

Some bacteria in the soil, such as E.coli 0157, can cause health problems and in extreme cases death. Tetanus is another example of a disease caused by bacteria.



Remember when you handle soil, it is wise to wash afterwards.



Methods of Intake From The Soil

Most of our intake from the soil is via the food we eat. Farmers and gardeners grow crops in the soil for us to eat and these crops can be very tasty and healthy.

Amazingly, in some countries of the world people eat soil directly, on purpose, in order to get nutrients from it. This is mainly in the poorer countries of the world where there is not enough food and where bodies are telling them that they need certain nutrients that can be obtained from the soil.

Soil can also be inhaled as dust and by young children as they play. It can also be taken into the body through skin abrasions.

It will no doubt surprise you to know that people in some countries eat soil in order to get nutrients they badly need. It tastes ugh! So don't try it!

