How soil is formed

slide no. 3.

Hi kids. So, you have already asked the question - how soil is formed. Or not …

This video is going to be about pedosphere. About what? About pedosphere.

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The word pedosphere comes from the Greek word pedon, which means soil and is used as marking for soil layer of the Earth.

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So, we will say a few words about soil, what soil is, how it is formed, what soil types there are, about importance of soil and that should be all. Let´s go on then.

slide no. 6.

Soil is the uppermost layer of the Earth crust. And what is the Earth crust composed of?

slide no. 7.

Of different stones, sorry… of different rocks, and believe me, there is a really big pile of them.

slide no. 8.

It is the decay of these rocks which forms the soil. It sounds simple, doesn´t it? Well, it isn´t really a finger snap. It is a long-lasting process, which lasts for a very long long time. But beware, just one piece of rock is not enough. Soil formation processes are also important.

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In short, the weather takes part in the rock decay and the soil formation in form of heat changing during which the rocks increase volume, and in the form of cold during which the rocks decrease volume. This process is really a „shock for the rocks“. They then decay into smaller pieces step by step.

slide no. 12.

Rocks can be decayed also by water. The water can easily get into a gap in the rock. If the water freezes, it increases its volume, which causes pressure that breaks the rock.

slide no. 13.

The next factor of soil formation process are organisms. For example: roots of plants can decay the rocks. Well, the soil is not composed only of decayed parts of rocks but also of dead remains of plants and animals. And, of course, the whole process needs plenty of time.

slide no. 14.

It is stated, that in the Czech Republic about 10 cms of fertile soil are created in the period of 1000 years.

slide no. 15.

The soil is composed of inorganic part formed by different kinds of rocks, their fragments, dead pieces of plants and animals, water and air. Organic part is formed by animals living in soil, microorganisms or by roots of plants.

slide no. 16.

In the soil there are different coloured levels and these are called soil horizons.

The uppermost horizon of humus enriches the soil with nutrients. In fact, they are the decomposed bodies of plants and animals. The next is subsoil, substratum and bedrock, which form the soil.

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Let’s summarize it.

Soil formation processes and soil creation are caused by decay of rocks. Remember, the whole natural process is called weathering or erosion and leads to creation of the soil!

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Depending on what the bedrock is composed of and also depending on the way of weathering, several soil types are distinguished. According to grain size, which is connected to water permeability, we recognize three basic soil types.

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These soils are: sandy soils, loamy soils, clay soils.

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Sandy soils are found on sandstones, they have bigger grains so they are well permeable for water and air. Conifers prosper on these soils.

Loamy soils are found in lowlands and they have medium-size grains. Loamy soils are used in agriculture and various agricultural crops are grown and prosper on them.

slide no. 22.

Clay soils have the smallest grains of all. They are almost impermeable for water and air and in agriculture they are almost unused, but for example ornamental trees prosper on them. You can add sand to the clay soil to help it get lighter, then its permeability will be better and thus the fertility.

slide no. 23.

Different combinations of the soils may occur. We can find for example sandy loam soil, clay loam soil or sandy clay soil.

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How many times do we ignore it? We walk on it. We destroy it although we need it. And we need it because it feeds us. Yes, it is the soil!

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So why is the soil important?

Thanks to its unique composition it is essential for the existence of life.

It is home for different organisms, it is a habitat for wild growing plant species, it is used for growing agricultural crops on which animals and humans depend.

It is a water supply.

It is also basic substance of building materials, like bricks, and raw materials, like clay.

And it is used for constructing buildings in developing countries.

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We should be aware that the soil is elemental but limited and exhaustible source of natural wealth of each country, so we should protect it.

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Phew, enough of theory. We are going to explore physical and chemical qualities of the soil by experiments.

slide no. 28

We are already looking forward to the experiments.