

How is soil formed? - learning about the soil layers

1	<p>Overall aims:</p> <ul style="list-style-type: none"> • introducing the concepts of: soil, soil layers, fertile soil, poor soil • shaping the ability to distinguish between soil layers • shaping pro-ecological behaviors • developing teamwork skills • developing fine motor skills
2	<p>Vocabulary - keywords soil, soil layers, rock garden</p>
3	<p>Sustainable abilities developed</p> <ul style="list-style-type: none"> • Anticipatory competency • System thinking • Strategic competency
4	<p>Pillars of sustainability included</p> <ul style="list-style-type: none"> • Socio-cultural • Economical • Ecological
5	<p>STEAM domains S, A, T</p>
6	<p>Teaching methodologies/activity outline</p> <p>Introduction: animation "How is soil formed?" https://www.youtube.com/watch?v=8yO_Ok84Ve4&t=16s Soil is formed by weathering rocks under the influence of long-term exposure to water, air, changing temperature and various microorganisms.</p>



Soil testing: Is the soil wet or dry?

Children take a soil sample from the lawn, park or garden and put it on a piece of paper. They are examining the soil under a magnifying glass. They list the soil components they have observed. They determine if the soil is moist. They put it on the palm of your hand and squash it. If the soil is sticky when you open your hand, it has water in it. You can also leave the sample on a piece of paper for a few hours to dry.

Creating the soil profile in jars or glass containers.

Children from stones, fragments of rocks, sand and gravel and humus soil create their own soil profile. They compare the height of the individual layers with each other. They wonder what plants could grow on such soil.

- What plants like sandy soil? What plants grow in coastal dunes? Examples of grass, e.g. sedge, trees: pine, birch
- What kind of soil will we choose when planting vegetables?
- What plants grow on rocky ground?

Explaining the concept of fertile soil versus poor soil

The teacher talks to the children about which soils are fertile and which are poor? The fertility of the soil is a set of its properties that provide the plants growing on it with the right conditions for vegetation, nutrients, water and air. The teacher can demonstrate different soils' profiles, e.g.: https://geografia.gozych.edu.pl/wp-content/uploads/2017/11/profil_gleba.png

Designing and building mini rock gardens in glass containers or outdoor (in a preschool garden). Children from stones, soil and sand create their gardens in glass containers and plant plants in them. <https://www.mamawdomu.pl/2019/06/las-w-sloiku.html>

7 Expected learning outcomes

The child will be able to:

- explain the terms: soil, soil layers,
- indicate what basic layers the soil consists of
- explain how soil is formed
- describe the difference between fertile and poor soil

8 Assessment

Observation: the child arranges the soil layers in the jar and names them
He sets up a rock garden and takes care for it

9	Equipment and materials to be used in learning unit (tools, ingredients etc) A chart illustrating the soil layers, glass containers, stones, gravel, sand, plants to create a mini rock garden.
10	Kind of setting - lab, kitchen, outdoor etc. Public park, lawn, garden, classroom
11	References - source: <ol style="list-style-type: none">1. https://www.youtube.com/watch?v=8yO_Ok84Ve4&t=16s2. https://zpe.gov.pl/a/gleby/DWvWgWYNR3. https://www.mamawdomu.pl/2019/06/las-w-sloiku.html

