

What color is the soil? - testing different types of soil

1	<p>Overall aims:</p> <ul style="list-style-type: none"> • Understanding selected soil properties (color, smell, consistency, weight) • Developing the ability to observe and study the natural environment • Enriching knowledge about the importance of soil for plants, animals and humans • Improving skills in weighing soil and comparing the obtained results • Constructing a natural filter • Taking pictures of various types of soil and their samples
2	<p>Vocabulary - keywords</p> <p>loamy, sandy, sedimentary soil, chernozem, humus, weight, permeability, filtering</p>
3	<p>Sustainable abilities developed</p> <ul style="list-style-type: none"> • System thinking competency • Anticipatory competency
4	<p>Pillars of sustainability included</p> <ul style="list-style-type: none"> • ecological
5	<p>STEAM domains</p> <p>S, E, T, M</p>
6	<p>Teaching methodologies/activity outline</p> <p>Before the class, the teacher, together with the children, during walks or trips to various places, collects soil samples - e.g. from a kindergarten garden, meadow, river, forest and universal.</p> <p>Introduction. The teacher asks the children: what is the color of the soil? What is the smell of soil? How much does 5 ml of soil weigh? What is the consistency? Children pose hypotheses.</p>



Main part:

Verification of hypotheses.

Divide children into several teams. Each one gets 1 soil sample and tests it: determines the color, smell, weight and consistency

A representative of each group gives the results of their research. The teacher can write down the children's answers on the chart. Children compare their results and draw conclusions.

Experiment: Does all soil release and purify water?

Children in teams construct a filter from a plastic bottle,

The bottle must be cut at a height of 10 cm from the bottom, the upper part is put down into the cut-off part of the bottle, then a few swabs, soil (each group puts its own soil sample), stones.

Children have the same amount of dirty water prepared in the dish, e.g. from a puddle or a pond).

After preparing the filters, set them so that all children can see how the water is being filtered. Children pour dirty water into their filters at the same time.

We observe what is happening: does every type of soil allow water to pass? What color is the filtered water in the filters? In which the water poured faster?

You can measure time on the stopwatches. Children also take photos before and after the experiment.

Conclusions:

- different soils let water through, but at different times - some faster, the other slower
- the soils purify the water

Summary

Conversation: what is soil for? How do animals and humans use the soil? What can you make of the soil? Children make a concept map showing the importance of soil in nature and economy, e.g. soil serves as water filter, nutrient warehouse, water storage, source of fuel and food, landscape component, plants and animals habitat, waste storage site, place of circulation of nutrients, etc.

To illustrate the importance of soil as an animal habitat, the teacher can show pictures of, for example, clay bird nests, molehills etc.



<https://dzikainfrastruktura.psubraty.pl/2019/07/tworzenie-miejsc-legowych-oknowek/>
<http://www.e-ogrodek.pl/zdjecia-ogrodow/szkodniki-w-ogrodzie-1095/kretowiska-6107.html>



https://ladnydom.pl/budowa/1,106565,10472288,Dom_ze_slomy_gliny_i_kamieni.html

The houses made of clay can be shown as a curiosity.



Additional activities - according to the teachers' choice:

Soil painting - the underground world.

Constructing from clay or/ and straw.

For the brave - you can suggest a mud kitchen



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7	<h2>Expected learning outcomes</h2> <p>The child will be able to:</p> <ul style="list-style-type: none"> ● examine and observe various types of soil ● determine soil properties: color, smell, consistency ● weigh the soil samples and compare the results ● make a concept map - what is soil for? ● construct a natural filter from different types of soil
8	<h2>Assessment</h2> <p>Unfinished sentences, conversation with children: The soil can have a color.... Soil is useful because ... The soil is used by ...</p>
9	<h2>Equipment and materials to be used in learning unit (tools, ingredients etc)</h2> <ul style="list-style-type: none"> ● Soils - samples taken from various locations, camera, scale, stopwatch, plastic bottles, cotton balls, stones, spatula or spoons
10	<h2>Kind of setting - lab, kitchen, outdoor etc.</h2> <p>Outdoor: forest, meadow, preschool garden, public park, classroom</p>
11	<h2>References - source:</h2> <p>Instruction for preparing a water filter: https://www.youtube.com/watch?v=zatcpQt6nmA</p>

