

# Are earthworms useful? - growing earthworms in a jar

<b>1</b>	<p><b>Overall aims:</b></p> <ul style="list-style-type: none"> <li>• Understanding the importance of earthworms for soil</li> <li>• Developing the ability to observe and investigate the natural environment</li> <li>• Enriching knowledge about the internal structure of earthworms</li> <li>• Improving the skills in measuring (using a ruler) and determining the differences in the length of earthworms</li> <li>• Providing opportunities for creative use of waste (toilet paper rolls - recycling). here</li> </ul>
<b>2</b>	<p><b>Vocabulary - keywords</b></p> <p>earthworm, soil, sand, loosening of the soil, fertilization, rings, length, measuring</p>
<b>3</b>	<p><b>Sustainable abilities developed</b></p> <ul style="list-style-type: none"> <li>• System thinking</li> <li>• Anticipatory competency</li> <li>• Strategic competency</li> <li>• Collaborative competency</li> </ul>
<b>4</b>	<p><b>Pillars of sustainability included</b></p> <ul style="list-style-type: none"> <li>• Ecological</li> </ul>
<b>5</b>	<p><b>STEAM domains</b></p> <p>S, A, M</p>



## 6

### Teaching methodologies/activity outline

#### Introduction

The teacher informs the children that they are going outside in search of earthworms. We will observe earthworms and take some of them to the kindergarten. You have to be very gentle with them. And after the end of the experiment, we'll give them all back to nature.

Outdoor activities:

1. Go out to the garden after the rain. Take shovels, jars, magnifiers, rulers, sprinklers with water.
2. Observe changes in the garden after the rain and search for earthworms.
3. Ask the children to gently dig a hole in the ground with a shovel and look for earthworms.
4. After finding the earthworm, ask the children to observe them with a magnifying glass. Conversation about earthworms:
  - What does an earthworm look like?
  - How is it built?
  - Does it have eyes?
  - How long is it? (can be measured with a tape measure or a ruler).
  - What does it eat?
  - Is it useful?
  - Where does it live?

5. Verification of hypotheses - preparing an experiment:

Start the breeding culture of earthworms asking the children to work in small teams: children prepare the jars, pour in alternately a layer of soil, a layer of sand, soil, sand and soil. Sprinkle all layers with water. Gently put the found earthworms in jars. On the top of the jar children put dry leaves, egg shells and some dry grass. Take the jars to the kindergarten and cover them with a dark fabric or with black cardboard. Leave the breeding culture for a few days.

**Indoor activities:** Based on the observations, we encourage children to make an earthworm from paper rolls. We cut 3 rolls in half (for one child). The child sticks them to the cardboard. And decorates them with colored tissue paper, paints, and chalk.

**Verification of hypotheses** After a few days, ask the children to observe what happened? Answer the questions: what do earthworms eat and why are they useful? Explain the concept of loosening and fertilizing the soil. Take the jars with earthworms back to the garden and put them gently into a composter or onto flower beds. Finally, you can watch a movie about earthworms: Earthworms are amazing!



7	<h2>Expected learning outcomes</h2> <p><b>The child will be able to:</b></p> <ul style="list-style-type: none"> <li>• set up a culture of earthworms in a jar</li> <li>• watch the action of earthworms in mixing the layers of the soil</li> <li>• explain what the activity of earthworms is about</li> <li>• overcome his aversion to earthworms</li> <li>• make a rainbow earthworm from toilet paper rolls</li> </ul>
8	<h2>Assessment</h2> <p>Observation chart for monitoring the earthworm culture in the jar: every day children should observe and draw what has changed in the jar Drawing conclusions from observation: why is the earthworm useful? What does an earthworm do? Children explain the term „soil loosening” with their own words</p>
9	<h2>Equipment and materials to be used in learning unit (tools, ingredients etc)</h2> <ul style="list-style-type: none"> <li>• Jars - large: the number depends on the number of established cultures, you can prepare a different soil in each jar; soil, sand, sprinkler, water, shovel, magnifier, leaves, grass, egg shells, black cloth or black cardboard.</li> <li>• Toilet paper rolls (3 per child), scissors, colored tissue paper, glue, paints, chalk</li> </ul>
10	<h2>Kind of setting - lab, kitchen, outdoor etc.</h2> <p>preschool garden, preschool classroom</p>
11	<h2>References - source:</h2> <p><a href="https://www.youtube.com/watch?v=Xpuf_ud5mb8">https://www.youtube.com/watch?v=Xpuf_ud5mb8</a> <a href="https://mamosiaczka.blogspot.com/2017/02/teczowa-dzdzownica-kolaz.html">https://mamosiaczka.blogspot.com/2017/02/teczowa-dzdzownica-kolaz.html</a></p>

