



# SOIL CAMP

## TRANSDISCIPLINARY EXPERIENCES



Seeing Our Soil Community in Action:  
Watch the Breakdown!



# TRANSDISCIPLINARY EXPERIENCES

## GROUNDING INTRODUCTION/OBJECTIVE/THOUGHT PROVOKING QUESTIONS

This experience seeks to intentionally bring to light what it actively means to be in community with the soil and to support the networks of which we are within. Processes such as decomposition, highlighted in this experience are often invisible as they silently happen under our feet. Soil Campers learned about decomposers and other microbes that live in the soil, and the effects of non-biodegradable material being disposed of in the environment. Decomposition is an important process that occurs all the time in both familiar places to us as well as those unventured places. With coming to understand the breaking down of organic matter as a contributor to rich systems of growth, Soil Campers investigated the human impacts on this process and resulting impact on soil health and more-than-humans. We may not often think much about such processes or not think of ourselves beyond as beneficiaries of this process through our consumption and disposal habits; this experiences opens opportunities for reflective conversations relating to capitalist overconsumption, non-organic material dumping, and thinking beyond human-centered perspectives of soils and the acts of listening to the intricate network of voices. As we come to the soil, we come to see the time and labour required from the network in this process and aim to question how we are practicing reciprocity (being supports to the network we are integral to), and how we can then use our rich knowledges to approach stewardship.

## EXPERIENCE AT A GLANCE

Soil Campers created "Litter bags" using a fabric/metal mesh filled with different materials such as cotton, fruits, plastics, etc. Soil Campers hypothesized what would happen to the material when left in the soil for five weeks. During the activity, there were also opportunities to share the names of the sample material in the languages held in our hearts and tell stories about the actions one may or currently take to be good relatives to the soil. One story that was shared related to how we can reuse plastic bags to reduce waste and consumption.

Soil Campers learned about the negative consequences of burying plastic/non-biodegradable material into the soil. We learned about how the disposal of waste can impact the ecosystem that is in and around the soil. Soil Campers developed knowledge about the importance of responsibility and working together as a community to support the soil and move towards earth-centered healing. Moreover, Soil Campers realized that soil is a home to many organisms, and learned about the connection and relationships between humans, the more-than-humans, and the soil.

## MATERIALS

- Mesh: Nylon Stockings or Screen Door Mesh
- Samples: fruit, plastic or cloth (to bury)
- Shovels
- Rope
- Name Tags
- Pens
- Small kitchen scale
- Stapler
- Clear Tape

## CONNECTION TO GROUNDING EPISTEMS



**LISTENING TOGETHER TO THE VOICES OF THE SOIL AND OTHER MORE THAN HUMANS**



**LISTENING TOGETHER AS A COMMUNITY TOWARDS EARTH-CENTERED HEALING**



**LISTENING TOGETHER TO THE HISTORIES, LANGUAGES, AND STORIES (THROUGH ANTI-COLONIAL RELATIONALITY)**



For more information, please visit <https://www.soilcamp.ca/vision>



# TRANSDISCIPLINARY EXPERIENCES

## LEARNING OUTCOMES/KEY CONCEPTS

What did the Soil Campers learn from the experience?

- Seeing the soil as alive and filled with life
- Process and importance of decomposition
- Practicing reciprocity and understanding human impacts
- Getting to know the soil and the more-than-human organisms that support it
- Critical understanding of how to support the network and process
- Soil and Earth Chemistry
- Creating hypotheses
- Weight and data management
- Measuring skills
- Difference calculations
- Concepts about surface area
- Scaling
- Comparing samples visually, scientifically, and mathematically

## GUIDING QUESTIONS

Consider asking the following questions:

- Do you know what the word decomposition/decompose means?
- Why is the process of decomposition often overlooked, and what importance does it hold in our communities?
  - How does decomposition help things grow?
- Why do you think it is important to dispose of trash properly?
  - Connect to composting
  - Consider connecting to topics about human impacts on the environment and sea life
- What do you think will happen to the samples after 5 weeks?
- Can you guess how many years it will take for your sample to fully decompose?
- Which samples do you think will decompose faster?
  - Why do you think that certain samples will decompose faster?
- Why do you think we use a mesh bag instead of a plastic bag?
  - Connect to the idea that we want to have the microorganisms present in the soil to decompose the samples inside the bags, and thus, we need porous bags.
  - Can lead into a discussion about soil science, microorganisms, bacteria, and other more-than-humans present in the soil.
- In what ways is it important to appreciate the more-than-human life in and outside of soil, and how does this help to our understanding of living networks?
- How can our knowledge of soil processes help us develop a more responsible approach to personal practices and stewardship?
  - Why do we use compost on our garden bed?
  - What does this knowledge on decomposition help you understand or reimagine?



# TRANSDISCIPLINARY EXPERIENCES

## EXEMPLAR AND/OR ARTIFACTS Steps of the Activity



2) Show the Soil Campers the images of decomposers and have a discussion about what decomposers do. Have the Soil Campers guess what the images are to engage their curiosity.

1) Start the activity by going over human impacts on the environment and going over the importance of disposing waste properly.

Connect to the languages in the Soil Campers' hearts if possible. For example, "Do you have a word for this in your whole language heart?"



Mesh



Clear Tape



Samples



Kitchen Scale



Shovels



Name Tags



Pens/Markers



String



Stapler

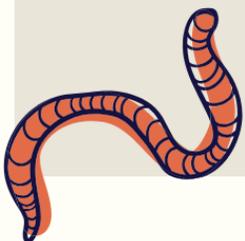


4) Here, we cut the mesh into 8 x 4 inch rectangles.

We used mesh to allow microorganisms to enter and break down the samples.

**\*\*NOTE: If using metal mesh, tape the edges of the mesh to protect the Soil Campers' hands from possible injury!**

3) Lay out all of the materials you will be using for the litter bag experiment.



Please see Other Notes on the Last Page\*\*

# TRANSDISCIPLINARY EXPERIENCES

## EXEMPLAR AND/OR ARTIFACTS



5) Place the sample in the mesh bag and fold the mesh bag in half with the sample inside. Staple the edges of the litter bag.



6) Cut a piece of string that is about 15-20 inches long. Tie one end of the string around the litter bag.



7) On the opposite end of the string, tie a name tag to the string. On one side of the name tag we wrote our names.

Try not to use water soluble pens when writing on the name tags .



8) We then took the weight of the litter bag and recorded the weight onto the other side of the name tag.

**Note:** Laminate the name tag using tape to protect the name tag from rain or weathering! (Refer to the image in Step 7).



# TRANSDISCIPLINARY EXPERIENCES

## EXEMPLAR AND/OR ARTIFACTS



9) Dig a hole in the soil that is deep enough to place the litter bag in.



10) Place the litter bag into the hole.



11) Bury the litter bag leaving only the name tag visible above ground.

12) Wait about 4-5 weeks to dig up the litter bags. Record the new weight of the litter bags.

Ask: How did the sample of the litter bags change when in the soil? Why did this change occur?

We found that the Soil Campers loved the hands on-activity and were engaged in hypothesizing and building their litter bags!

### Note:

- When conducting the activity in an open area, limit the area Soil Campers can bury their litter bags.
- One can limit the area using flags and string to indicate the boundaries of burying the litter bags.
- Consider tying brightly coloured flags to the name tags to make the litter bags easier to find. Record (on a piece of paper) the general area where each litter bag was placed.



# TRANSDISCIPLINARY EXPERIENCES

## OBSERVING AND MAKING SENSE OF THE CHANGES



With the understanding that we can come to know through many ways, we can extend the ways in which we can observe and measure the changes happening over time, drawing from different disciplines. Offer the opportunity for recording sense and measurement based observations in written, drawn and photo form while also encouraging an openness to quantitative and other qualitative analyses used in the real world. This extension can be useful for demonstrating the differences between quantitative and qualitative data.

### QUANTITATIVE APPLICATION: Determining the %Mass Loss of the Litter Bag

When using plants, fruits, or vegetable samples, consider drying the samples before hand for more accurate results. For example, consider using dried apples for more accurate results.

#### Steps:

1. Weigh the dry apple piece. This is the initial, dry weight of the sample (W1).
2. Now place the dried sample into the litter bag and then weigh the sample again (W2).
3. Moisten the litter bag to allow water to get into the dried apple.
4. Place the litter bag into the ground and wait about 5 weeks before digging up the litter bags.
5. Dig up the litter bags.
6. After digging up the litter bags, carefully wash off the soil material on the bag.
7. Dry out the litter bag, and then take the weight of the dried litter bag (W3).

#### %Mass Loss Calculations:

$W2 - W1 = W4$  (Weight of the litter bag plus staples)

$W3 - W4 = W5$  (Remaining weight of the sample)

$\% \text{Mass Loss} = (1 - W5/W1) \times 100\%$

### QUALITATIVE APPLICATION:

Before placing the sample into the litter bag, observe the initial sample: what does the sample look/smell like? What colour is the sample?

After digging up the litter bags, reflect on what the sample looks/smells like and any other observations (example: if there are any soil fauna on it, etc.). Compare the results with the initial observations.



# TRANSDISCIPLINARY EXPERIENCES

## EXTENSION: SOIL YOUR UNDIES!!

Instead of burying Litter Bags, consider burying a pair of 100% cotton underwear!

- Take a pair of underwear and tie a string to the waistband.
- Tie a name tag to the other side of the string.
- Bury the pair of underwear in the soil, leaving the name tag above the surface of the ground.
- Dig up the underwear after about 2 months.

(This activity takes about 2 months to receive full results.)  
After 2 months, if the pair of underwear is completely gone (and only the waste band is present) than the soil is healthy!



### RESOURCES

- Decomposer Images:  
<https://www.teachoo.com/11168/3197/Components-of-Ecosystem/category/Concepts/>
- Soil Your Undies Extension:  
<https://novascotia.ca/programs/soil-your-undies/>

### OTHER NOTES

In the experiment, we used metal mesh with tape around the edges. However, we recommend using Screen Door Mesh (Fiberglass Mesh) or Nylon to prevent injury.

### ACKNOWLEDGEMENTS

Developed by: Mathew Swallow, Mahati Kopparla, Jenny Yuen, Janice Hor, Sophia Thraya  
Template created by: Sophia Thraya  
Photos taken by: Anika Haroon



The Litterbag Experiment by Swallow, Kopparla, Yuen & Hor is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

THANK YOU!

