GOULD LAKE OUTDOOR CENTRE
Limestone District School Board

2857 Rutledge Rd. Sydenham, ON K0H 2T0
outed@limestone.on.ca
613.376.1433
www.gouldlake.ca
@gouldlake_LDSB

Thank you to RainOrShineMama for this content idea

"What Happens to My Trash?"

Backyard Experiment

Recommendation: Students in Grades 2 to 5. Outdoor activity. Adult supervision recommended, especially if students are working with tools.

Purpose: Explore biodegradation to nurture an understanding of what happens when people litter and what we should do with our waste instead. This can lead to conversations about the importance of reducing waste and properly recycling.

Materials:

- Hammer
- Nails
- Shovel
- Wood plank *(~3ft long)*
- 5-8 sample materials such as an apple core, slice of bread, piece of cardboard, newspaper clipping, piece of milk/juice carton, styrofoam, plastic grocery bag, snack wrapper, etc.
- Paper and writing utensil

How It Works:

Context: All materials can be sorted into two categories: Biodegradable and Non-biodegradable. Materials that break down into simple compounds and are absorbed into the soil are biodegradable. All other materials that cannot be broken down into simple compounds with natural exposure to air, sun, moisture, bacteria, micro-organisms, etc. are non-biodegradable and can pollute the Earth.

Step 1: Select your assortment of sample materials and nail each one to the wooden plank.

Step 2: Using your paper and pencil, make a drawing of the wooden plank and label where each sample is nailed. Take a moment to predict what will happen to each material. Do you think it is Biodegradable or Non-biodegradable…what do you think it will look like when you dig it up?

Step 3: Dig a shallow trench *(15cm/half a ruler length will work well)*, place the plank in the trench and then bury it. Be sure to mark the beginning and end of the trench with sticks or rocks so that you can find it to dig it up later.

Step 4: Wait a set period of time. In warm summer months one week can be enough to see significant changes in some materials, in spring or fall it could take two weeks or more.

Step 5: Carefully unbury the plank. What do the materials look like now?

Materials that are Biodegradable will look significantly different because water, air, and critters like worms have begun to break them down into nutrients that the soil can absorb and use. These items in daily life are best placed in a compost or green bin.

Materials that are Non-biodegradable will be dirty but otherwise have little to no change. They are not made from natural products and therefore cannot be reabsorbed by the Earth. When they breakdown the become micro-trash and can release chemicals, toxins, pollutants, etc. that harm the air, water, plants, and animals. These items in daily life need to be properly recycled.

Step 6: Revisit the predictions you made. Describe the items as they appear now and record whether that item is Biodegradable or Non-biodegradable.

If you want, you can record your findings, rebury the plank and come back again each week until satisfied.

Extensions:

- Choose one of the materials that changed little or not at all and research it. Where does it go for recycling? What products can be made from it after it's recycled? Are there ways that we could reduce or reuse this product before recycling it?
- Are there any conditions you could change *(temperature, soil, moisture, etc.)* that would impact the speed of decomposition? You could set up two trenches to study this... one in the shade, one in direct sun. One that you water, one that you leave dry. One buried in earth, one buried by rocks. Etc. Be sure to make predictions and then record your findings!
- Brainstorm a list of materials that you use in everyday life and then sort them into biodegradable or non-biodegradable. Next, research your municipal services to help you further sort the non-biodegradable items into when they are put out for recycling.

Conclusion:

The activity can stand on its own for fun experimentation or it can be followed up with more discussions about the differences between materials and how quickly they breakdown.

Ask them to imagine what your neighbourhood would look like if there was no composting or recycling?

What can humans do to help take care of the Earth when it comes to managing our waste?

Resources:

Ontario Curriculum:

Grade 2: Air & Water in the Environment, Properties of Liquids & Solids

Grade 3: Soils in the Environment

Grade 4: Habitats & Communities

Grade 5: Properties of and Changes in Matter, Conservation of Energy & Resources