



Teacher's Corner Lesson Plans

*Helping Teachers and Students Make the Most of
their Outdoor Classroom*

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Let's Plant Some Garbage*

Grade level: Grade 4.

Provincial curriculum links: Alberta.

Subject: Science; Language.

Keywords: Garbage, gardening, garden, plant, biodegradability, recycling, reuse, environment, pollution, litter.

Description

Students will be experimenting first hand the biodegradability rates of various materials in their own schoolyard. They will be planting various types of materials in an experimental garden, leaving them there for a few months, and returning in the spring to discover what course of action has taken place. Results will then be analyzed.

Curriculum Framework

Academic (Regular Strand)

Specific Lesson Goals

Students will:

- Identify and classify wastes that result from human activity
- Distinguish between wastes that are and are not biodegradable
- Identify kinds of waste that are toxic to the environment

Preparation

Preparation time: 5 hours (Includes preparing garden beds, or suitable spot in schoolyard)

Length of lesson: 1.5 hours to plant plus time throughout the year for observation

Resources required:

*Submitted by: William Reid Elementary School, Alberta

- Two or three experimental beds (approximately 2 ft by 5 ft or 10 square foot) in which to plant the garbage
- Shovels
- Popsicle sticks to label the areas where the garbage has been planted for future reference when the various materials are dug up and analyzed.
- A hose or a pail for watering
- Suggested material for planting:
 - An apple core
 - A piece of material (100% cotton)
 - A nail
 - A small glass jar (baby food jar is the perfect size)
 - Pieces of lettuce
 - Newspaper
 - Styrofoam
 - A plastic bag
 - Yarn
 - Aluminum foil
 - Empty pop can (crushed)
 - Egg shells

Procedure

1. Dig holes (approx. 10 cm deep) for each item to be planted
2. Pour a bit of water in hole before placing your item. Place soil on top of the hole.
3. Place a popsicle stick in each hole, indicating what item has been planted in each location (for future reference)
4. Water the garden on a regular basis.
5. A few months later, remove all items from your experimental garden. Analyze the results. Which items have undergone change? How have they changed?

Discussion and Questions

Questions can be answered in large group discussions or in their Science Observation Logs.

Prior to planting:

- What does biodegradable mean?
- What is the connection between these two terms: decomposition and biodegradability? Why?
- Which types of things are biodegradable? Why?

- What happens to materials when they biodegrade?
- From our Garbage Garden, which materials do you think will biodegrade? Which will not? Why?
- How will you know the material has decomposed?

After digging up planted garbage:

- Which materials biodegraded?
- Were you surprised by any of the results?
- Were any of your predictions correct?
- What happened to material that biodegraded?
- What did we learn from this experiment?
- What is the impact of throwing away non-biodegradable materials in the garbage and sending them to the landfill site? What are the effects on our environment?
- What actions can you take to prevent this from happening?

Student Evaluation

Students may be evaluated after this activity on whether or not they are able to recognize which types of materials are biodegradable and which are not.

Enrichment and Extension Activities

Encourage the students to bring other materials they wish to experiment with. Have the students draw visual maps of where they have planted each item for future reference when all of the garbage will be dug up. Connection to the outdoor classroom: this activity primarily takes place in the Naturalized Area (outdoors), and examines the impact of waste on our immediate environment.

Educator Notes

Having the students work in small groups (3-4) is preferable for this activity. Reviewing expectations with the students and procedures of how to go about planting the various items prior to going outside is also strongly recommended. Planting the garbage towards the beginning of the school year (September-October) is recommended because of appropriate weather conditions for the outdoor activity. Leaving the Garbage Garden a few months before analyzing the results in the Spring yields fascinating information and is exciting for the students.