



Plant It, Dig It

Lesson Plan

Centered on the Three R's of Reduce, Reuse and Recycle

Grades: K–4. Please make changes to lessons and appendices as desired to fit the needs of your classroom.

Lesson Duration: 1 month

Standards: See complete list at end of lesson.

Objectives:

- Students will perform and experiment to find properties of decomposable and non-decomposable materials
- Students will use the scientific method to perform experiment
- Students will ask questions, form ideas, and test ideas
- Students will compare and contrast
- Students will explain results of their findings in written and/or oral form

Materials:

- Provide books and literature that conveys information about decomposable and non-decomposable products
- Styrofoam cup
- Apple core
- Small box (like a gelatin box)
- Elmer's School Glue
- Elmer's Glue Stick
- Shovel
- Chart paper
- Science Journal (optional)
- Appendix A- modify as needed
- Appendix B- Make a Portable Compost (optional)
- Camera

Directions:

Gather literature about decomposable products, non decomposable products, and composting, etc.



Lesson:

1. Introduce vocabulary

Possible words adjust for your grade level as needed:

Decompose, biodegradable, non-biodegradable, perishable, non-perishable, compost, decay, disposable, garbage, landfill, hazardous, waste

2. Create Science Journal

Have students glue **Appendix A** in science journal or use as an experiment guide. Modify **Appendix A** as needed.

3. Experiment

Teacher and Students use Appendix A to set up experiment.

- Use the scientific method to work through the experiment
 - Ask a Question
 - Do Background Research
 - Construct a Hypothesis
 - Test Your Hypothesis by Doing an Experiment
 - Analyze Your Data and Draw a Conclusion
 - Communicate Your Results
- Lay Styrofoam cups, apple core, gelatin box, and glue stick out in front of the students
- Take pictures (or have students take them) as they are completing the following tasks:
 - Have students help bury the four objects in approved area on school grounds. Place a marker where you bury these items so you can find them easily later.
 - Wait two weeks, dig up and observe.
 - Student write observations in experiment guide.
 - Repeat in 2 more weeks (buried a total of 1 month). Again, students record findings in experiment guide.
- Students finish Appendix A and write (or draw, or teacher can scribe) a concluding paragraph to the experiment or teacher can assign variations below.

Varying levels:

Level 1: Explain orally or in writing the answer to the question we formed before the experiment began.

Level 2: Compare and Contrast two objects that were buried and explain orally or in writing what happened to each of them.

Level 3: Select four new objects that could be used to perform this experiment and based on your findings from this experiment predict what would happen to each. Share your answer orally or in written form.



Lesson (continued):

4. Wrap It Up

Develop photos. Have students use Elmer's glue and arts and crafts products to create a scrap book of the experiment. Make the scrap book out of brown paper bags and tie together with shoestrings. Display scrap book for all the school to see.

Let's have some more fun!

Make a portable compost (see Appendix B).

On-line resource for composting at www.copper-tree.ca/garden/compost.html

This lesson adheres to the following National Education Standards:

Science

NS.K-4.1 Science as inquiry Abilities necessary to do scientific inquiry, Understanding about scientific inquiry

NS.K-4.2 Properties of objects and materials

NS.K-4.3 Life Sciences Characteristics of organisms, organisms and environments

NS.K-4.5 Science and Technology: Abilities to distinguish between natural objects and objects made by humans

NS.K-4.6 Personal and Social Perspectives: Characteristics and changes in populations, types of resources, changes in environments

NS.K-4.7 History of Nature and Science: Science as a human endeavor

English

NL.Eng-K-12.4 Communication Skills Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively to variety of audiences.

NL.Eng-K-12.5 Communication Strategies Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate

NL.Eng-K-12.6 Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.

NL.Eng-K-12.7 Evaluating Data Students conduct research on issues and interests by generating ideas and questions, and by posing problems.



Plant It, Dig It

List or draw a picture of the four items to be buried in the boxes below:

--	--	--	--

1. Write a question you have about this experiment:

2. Use the information provided in the classroom to gather ideas and information.

3. Form a hypothesis

If _____

Then (I do this) _____

And (this will happen) _____

4. Bury the objects using these conditions:

- Same depth of hole for each object
- Even spacing between holes

- Equal duration of time buried
- Others?



Plant It, Dig It

Draw or describe observations:

After Two Weeks:

--	--	--	--

After Four Weeks:

--	--	--	--

5. Was your hypothesis True or False?
Why?

6. Write a paragraph to communicate your results.



Make a Portable Compost Bin

Things You'll Need:

- Large plastic bin or trash container with a tight fitting lid
- Moist old shredded newspaper
- 10-20 Worms
- Straw, sawdust, shredded leaves
- Natural food scraps (no meat scraps)

Any plastic tub with a tight fitting lid will work for this project.

Step 1

Turn your plastic bin over and poke several holes in the bottom of the bin.

Step 2

Fill the container with the moist old shredded newspaper and a mixture of straw, sawdust, shredded leaves. This will become the home to the worms that will make the compost.

Step 3

Add a layer of dirt and worms. (Look for worms in your garden or back yard. They are also available for purchase at some garden center stores or online.) Feed the worms with vegetable scraps, peelings, lettuce scraps, discarded fruit peels, etc.

Step 4

Secure the lid to the bin. The bin will get smelly and will attract animals so don't keep it in your house or garage. Make sure the lid is secure. (If you have opossums or raccoons in your area, you may want to wire the lid onto the bin.) Keep the container closed and the contents damp but not soaked, and the worms will do the work for you. As the worms eat the peelings, leaves and sawdust, your contents will turn from trash to compost. You can use this compost to feed your plants and garden vegetables.