

Third Grade Manatee Curriculum—Lesson 11: Biodegradable or Not?¹

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Description

Students will learn what types of items are and are not biodegradable. This lesson complements Lesson 10 by demonstrating that some types of trash will biodegrade quickly and not become a problem in the environment, while other types of trash stay around for a very long time.

Objectives

By the end of the activity, students will be able to list at least two types of items that biodegrade and at least two that do not.

Standards Addressed

Florida—SC.3.N.1.1; SC.3.N.1.6

Vocabulary

biodegradable, physical characteristics, recycling, decay, bacteria

You Will Need

- Piece of wood (e.g., popsicle stick)
- Slice of apple
- Piece of styrofoam cup
- Small piece of plant or a leaf
- Piece of plastic bag
- Penny
- Piece of napkin
- *Optional:* Piece of a soda can
- *Optional:* Biodegradable packing peanuts
- Masking tape
- Markers that will write on masking tape
- Eight 2-liter soda bottles or gallon milk containers cut down to about 6" in height. Cover the cut edge with masking tape or duct tape so it is not sharp.
- Potting soil (or garden soil, if available)
- Plastic wrap
- Rubber bands
- Copies of "Is it Biodegradable?" worksheet for students

1. This document is VM214, one of a series of the Veterinary Medicine—Large Animal Clinical Sciences Department, UF/IFAS Extension. Original publication date July 2015. Reviewed October 2018. For more lessons in the *Third Grade Manatee Curriculum* series, go to http://edis.ifas.ufl.edu/topic_series_third_grade_manatee_workbook. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
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The authors would like to thank the Florida Fish and Wildlife Conservation Commission for their financial support of this project.

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Strategy

This activity should be conducted on two days, no less than one week apart.

Day 1

1. Ask students what they know about recycling. Ask them to give you examples of things that they can recycle (such as newspapers, soda cans, tin cans, plastic bottles). Ask them to think about why some items can be recycled and why some cannot. Ask if anyone knows what happens to our trash when we throw items away. Explain that most trash is taken to a big place called a landfill, and that it just piles up there. As more and more trash goes to the landfill, the pile of trash gets bigger and bigger. Some of the things in the landfill will decay—this means that they will eventually disappear as they are eaten by bacteria and other things. However, there are some things that take a VERY long time to decay, so it is a good idea to recycle most of those things. Let the students know they are going to do an experiment with different types of items to see which items decay fairly quickly (are biodegradable) and which ones do not (non-biodegradable). Many natural things are biodegradable, while many artificial things are not.
2. Have students get into seven or eight groups of 2–3 students per group. Give each group a soda bottle or milk container and have them label it with the name of the item that will be buried inside. Show students all of the items to be buried, and have them record their observations on their data sheets.
3. Have the students place soil in their bottles until it is about 3 inches deep.
4. Have each group of students place their item on top of the soil in their bottle.
5. Have students add another 2 inches of soil on top of their item.
6. Give each group of students a measuring cup and have them pour one cup of water on top of the soil in their bottle.
7. Cut pieces of plastic wrap that are big enough to cover the top of the soda bottles, and have students use rubber bands to secure the plastic wrap over the opening of the bottle.

8. Have students place all of the bottles on a table or counter where they will be safe for a week.
9. Have students make a hypothesis as to which items will be the most biodegradable. Their hypothesis will be a guess as to which items they think will be biodegradable and which ones will not be. Have them list why they think this is so.

Day 2 (about a week later)

1. After a week passes, have the students take the buried items out of the soda bottles. What do they notice? Do any of the items look different from the time they were first buried? Have the students write what has happened on their worksheets. Ask them if the data support their hypothesis as to which item is the most biodegradable.

Lesson 11 Worksheet: Is it Biodegradable?

Name: _____ Date: _____

My Hypothesis: I think that _____ will be the most biodegradable because

ITEM	What did it look like before you put it in the soil? (color, size, shape, etc.)	After one week, did it change? (Yes or No)	Describe the changes.
Wood			
Apple			
Styrofoam			
Plant			
Penny			
Napkin			
Plastic bag			