



Environmental Stewardship

Essential Question

How can our community be good stewards to the environment and help protect federal lands and waters?

Learning Objectives

1. Students will be able to define the concept of stewardship and list at least three actions they can take to preserve their communities and/or federal lands and waters.
2. Students will conduct short research projects to identify human impacts on a selected location.
3. Students will work cooperatively to develop a school or class stewardship plan.

Common Core Skills

- Write informative/explanatory texts
- Produce clear and coherent writing
- Conduct short research projects
- Gather relevant information from print and digital sources

Time Required:

Two 40-minute class periods, plus homework time

Materials

We Are All Stewards activity sheet, **Breaking It All Down** activity sheet, **Make a School Stewardship Plan** activity sheet, **Human Impacts** resource sheet, **Leave No Trace** resource sheet, **Trash Timeline** resource sheet, collected trash items, Internet access, poster board, markers, glue or staplers, scissors, spades or shovels, craft sticks, durable card stock, markers

Vocabulary: stewardship, decomposition, enrich, pristine, cairn, fertilize

Getting Prepared

Go to **LNT.org** and review the Leave No Trace Seven Principles. Print the activity sheets and resource sheets listed in the materials section. Collect some of the trash items referenced on the **Trash Timeline** resource sheet. Review the *Extending the Learning* activity in Class Period 2 and work with your school to identify an outdoor location for the extension activity if you choose to complete it with your class.

CLASS PERIOD 1

Getting Started

1. Write the word *stewardship* on the board. Explain that stewards are people who manage or take care of specific areas. So stewardship is the practice of taking actions to care for a specific area. Challenge students to name some places that they see on a daily basis that need stewardship.
2. Explain that we are all stewards of this planet. Lead students in a discussion of ways in which they may already be practicing stewardship in their homes, schools, or communities, such as caring for a pet or completing chores that include cleaning their room, washing dishes, and taking out the trash. They may also help keep classrooms clean in school or volunteer for a park-cleanup day in their community.
3. Tell students that our home and school communities aren't the only places that need stewardship. Federal lands and waters also need our protection. Before you move on, review what students know about federal lands and waters from Learning Activity 1. If necessary, remind them that federal lands and waters are protected areas to: preserve natural landscapes, protect wildlife, commemorate history, provide recreational areas for public use, and manage natural resources for the future.

4. Project the **Human Impacts** resource sheet and ask students to describe what they see in the images. Explain that these types of impacts—litter, tire tracks, carvings into trees and rocks, and feeding wildlife—all harm the health of our federal lands and waters.

5. Pass out the **Leave No Trace** resource sheet. Explain that the Leave No Trace principles provide guidelines to help us all become good stewards of federal lands and waters. Separate students into groups and assign each group one principle. Ask them to review each of the stewardship points in their assigned principle and identify how that action can lessen human impacts on the area or environment.

Getting Engaged

6. Discuss what students noticed about the actions described on the **Leave No Trace** resource sheet. Now that students have taken a look at a stewardship plan, explain that the class will be creating their own stewardship plan for federal lands and waters.
7. Direct students to visit **everykidinapark.gov** and choose a federal land or water area they would like to focus on. Tell students they will work with their groups to create a brief stewardship plan for that area. Pass out the **We Are All Stewards** activity sheet and allow students to complete the sheet.

Extending the Learning

8. Take students on a walking tour around their classroom and school grounds. Ask student groups to work together to identify areas that need stewardship. Encourage students to think creatively about which areas need care and what types of behaviors can help or harm the area.
9. When you return to the classroom, pass out the **Make a School Stewardship Plan** activity sheet. Have students work cooperatively to develop a plan that outlines actions that members of the school can take to contribute to



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(continued)

school stewardship. For homework, have students use their completed School Stewardship Plan to write a formal proposal to present to the principal for how the entire school can get involved.

10. To further extend the learning into a hands-on project, create a School Stewardship Team or Club. You may either have the entire class choose one action to follow for an extended period of time, or you could have each group choose an action to adopt from its group plan. Students can present their stewardship proposal to the school administration for approval. Once their project is approved, students can create promotional posters and/or flyers to invite other members of the school community to participate.

CLASS PERIOD 2

Getting Started

1. Tell students that they will dig deeper into one of the stewardship issues our environment is facing. Ask: *Where have you seen litter?* Explain that litter is an issue not only in neighborhoods but also in federal lands and waters. Ask students what they remember about litter from the Leave No Trace principles. Have them refer to their **Leave No Trace** resource sheets and review Principle 3.
2. Write the word *decomposition* on the board. Beneath that write four or five time periods from the **Trash Timeline** resource sheet. Explain that decomposition is a process by which beings and objects break down and are absorbed into nature. Decomposition is a way that the environment recycles, using the decomposed bodies of animals and decomposed plant life to fertilize—or make richer—the soil in which plants grow.
3. Show students the trash you have collected. Point to the time periods you put on the board and ask students how long they think it takes each of those objects to decompose. After a few guesses, tell students you would like to test their guessing skills.

Getting Engaged

4. Pass out the **Breaking It All Down** activity sheet and challenge students to match the objects with the length of time they think it takes for the object to decompose. After students have completed the activity sheet, divide them into groups to answer the *Think It Through* questions at the bottom of the page with their group members.
5. Have a class discussion about the *Think It Through* answers as well as the correct decomposition time periods. (Answers: plastic beverage bottle, 450 years; newspaper, 6 weeks; leather, 50 years; paper towel, 2–4 weeks; plastic bag, 10–20 years; glass bottle, 1 million years; apple core, 2 months; aluminum can, 80–200 years; orange or banana peel, 2–5 weeks; wool sock, 1–5 years.)
6. Pass out poster board and explain that students will create a visual trash timeline. For a quicker project, have students cut out the images from the **Breaking It All Down** activity sheet and paste them in the correct order on the poster board. Make sure students put the objects in the correct order and label the timeline with the correct time periods. For a more involved project, have students draw their own images of objects, pick out images from magazines, or attach actual objects to the poster board. Ask students to add a stewardship pledge to the bottom of the posters and display them in the hallway so that other students can become aware of how long it takes trash to decompose.

Extending the Learning

7. Go to the area you have identified with your school administration for your class decomposition project. Have students bring leftover objects from their lunches, such as napkins, food wrappers, paper bags, plastic bags, milk cartons or bottles, and apple cores or banana peels. Take photos of the items, then bury them in the designated spot. Be sure to mark each item with a small sign made on card stock. Attach the card stock labels to a craft stick and have students push the craft sticks into the dirt to identify the objects.
8. When you return to the classroom, tell students the items will remain buried for a week or two. You may choose to leave some of the objects for a whole school year. Ask students to review the information on the **Trash Timeline** resource sheet and speculate about how their buried objects will have decomposed when they are unearthed after the designated time.
9. Retrieve the objects after the designated burial period and photograph them. Discuss the condition of the objects with the students and have them explain why certain items were more or less decomposed compared to the other objects. Ask: *Did the objects decompose in the way that you expected them to?*
10. You may choose to have students make posters and/or reports using the photographs to document the experiment. If time permits, you may also have students visit the Leave No Trace website at **LNT.org**, where they can do online activities to receive a certificate of completion.

We Are All Stewards

Team members' names: _____

Name of federal land or water area:

Type of environments found in that area:



Photo: Courtesy of National Park Service.

Potential human impacts to the area:

(Use the Internet to research the types of human impacts that environments similar to those found in your area have been facing.)

What can be done to lessen these impacts? (Refer to the Leave No Trace resource sheet for ideas.)

Making a School Stewardship Plan

Team members' names: _____

1. Areas of school where stewardship is needed: _____

2. What actions will your team take to provide stewardship in this area and which team members will do which tasks?

(Ideas include: board eraser, bookshelf arranger, turns off lights, playground or cafeteria cleanup, waste reduction and recycling coordinator, junior water-conservation manager, student stewardship ambassador to school, landscaper, etc.)

3. Who can help us?

(teachers, staff, parents, other students—try to be specific.)

4. What tools or supplies will we need?



Photo: Courtesy of National Park Service.

5. How often will the tasks need to be done?

6. How can we tell others about our stewardship plan and get them involved?

What Do You Propose?

Use your notes above to write a stewardship proposal to your principal. Your proposal should answer these questions:

1) What is the need? **2)** What actions do you propose that students take? **3)** What is the timeline for those actions? (When will the actions happen during the school day? How often will the actions happen?) **4)** What materials and/or support will you need for those actions?

Breaking It All Down

Think about how long it would take for discarded objects to decompose in the environment. Review the objects in the left column and match them with the amount of time you think it would take for each object to decompose.

PLASTIC BEVERAGE BOTTLE



2–4 weeks

NEWSPAPER



2–5 weeks

LEATHER



6 weeks

PAPER TOWEL



2 months

PLASTIC BAG



1–5 years

GLASS BOTTLE



10–20 years

APPLE CORE



50 years

ALUMINUM CAN



80–200 years

ORANGE OR BANANA PEEL



450 years

WOOL SOCK



1 million years

Think It Through

What kinds of things would break down into smaller pieces quickly? Why?

Which objects would take a long time to break down? Why?

What characteristics of these objects would affect the ways in which they decompose?

Trash Timeline

When you throw out your trash, you forget about it, but guess what? It takes time for garbage to decompose in the environment. Some of our garbage can even remain in the environment for hundreds of years! Check out how long it takes these everyday objects to decompose.



Glass bottle **1 million years**

Monofilament fishing line **600 years**

Plastic beverage bottle **450 years**



Disposable diaper **450 years**



Aluminum can **80–200 years**

Foamed plastic buoy **80 years**

Styrofoam cup **50 years**



Rubber-boot sole **50–80 years**



Tin can **50 years**

Leather **50 years**

Nylon fabric **30–40 years**



Plastic film container **20–30 years**

Plastic bag **10–20 years**

Cigarette butt **1–5 years**

Wool sock **1–5 years**



Plywood **1–3 years**

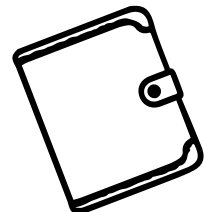
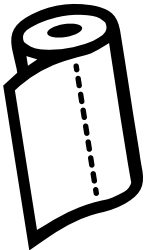
Waxed milk carton **3 months**

Apple core **2 months**

Newspaper **6 weeks**

Orange or banana peel **2–5 weeks**

Paper towel **2–4 weeks**



Human Impacts

What impacts do you see in these photographs?



Photos: Courtesy of National Park Service.

Leave No Trace

Seven Principles for Stewardship

1. PLAN AHEAD AND PREPARE

- ☐ Know the regulations and special concerns for the area you'll visit.
- ☐ Prepare for extreme weather, hazards, and emergencies.
- ☐ Schedule your trip to avoid times of high use, and visit in small groups. If not possible, split larger groups into smaller groups.
- ☐ Use a map and compass to eliminate the use of paint, cairns, or flagging.
- ☐ Repackage food to minimize waste.

2. TRAVEL AND CAMP ON DURABLE SURFACES

(Durable surfaces include established trails and campsites, rock, gravel, dry grasses, or snow.)

- ☐ Camp at least 200 feet from lakes and streams. Concentrate use on existing trails and campsites.

In popular areas:

- ☐ Walk single file in the middle of the trail, even when it's wet or muddy.
- ☐ Keep campsites small. Focus activity in areas where vegetation is absent.

In pristine areas:

- ☐ Disperse use to prevent the creation of campsites and trails.
- ☐ Avoid places where impacts are just forming.

3. DISPOSE OF WASTE PROPERLY

- ☐ Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, litter, and toilet paper and other hygiene products.
- ☐ Deposit solid human waste in cat holes dug six to eight inches deep, at least 200 feet from water, campsites, and trails. Cover and disguise the cat hole when finished.



Photo: Courtesy of National Park Service.

- ☐ To wash yourself or your dishes, carry water 200 feet away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater and pack out leftover scraps.

4. LEAVE WHAT YOU FIND

- ☐ Preserve the past: Examine, but do not touch, cultural or historic structures and artifacts.
- ☐ Leave rocks, plants, and other natural objects as you find them.
- ☐ Do not build structures or furniture or dig trenches.

5. MINIMIZE CAMPFIRE IMPACTS

- ☐ Where fires are permitted, use established fire rings, fire pans, or mound fires.
- ☐ Keep fires small. Only use sticks from the ground that can be broken by hand.
- ☐ Burn all wood and coals to ash, put out

campfires completely, then scatter cool ashes.

6. RESPECT WILDLIFE

- ☐ Observe wildlife from a distance. Do not follow or approach.
- ☐ Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- ☐ Protect wildlife and your food by storing rations and trash securely.

7. BE CONSIDERATE OF OTHER VISITORS

- ☐ Respect other visitors and protect the quality of their experience.
- ☐ Be courteous. Yield to other users on the trail.
- ☐ Let nature's sounds prevail. Avoid loud voices and noises.



Visit the Leave No Trace website for more tips at: [LNT.org/learn/7-principles](https://www.lnt.org/learn/7-principles)