



Small Steps® to Prevent Deforestation

A Collection of Middle School (grades 6–8) Level Activities from Marcal

Message from the Marcal® brand:

Marcal is a small, earth-friendly, paper goods company that has been a friend to trees since 1950. At Marcal, we make paper products responsibly. Marcal was one of the pioneers of the manufacturing process that makes it possible to reuse paper to make high-quality paper napkins, towels, bath tissue, and facial tissue, rather than cutting down new trees.

At Marcal, we believe that products should be earth friendly, budget friendly, and work great. Marcal® Small Steps® products make it easy to help make a difference in our environment because Small Steps® is made from 100% recycled paper. It is a "Small, Easy Step to a Greener Earth™."

Marcal offers the following Small Steps® classroom resources to inspire your students to take an active role to lead environmentally healthier and more sustainable lives. Through the Small Steps® standards-based activities, you and your students can learn how you can be partners in preserving and protecting your environment.

The activities included here are recommended for grades six through eight. The activities meet national standards in Science, English/Language Arts, Mathematics, Social Studies, Visual Arts, and Character Education. All pages can be photocopied in black and white for use with students.

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We hope you and your students enjoy this lesson. We'd love your feedback. Please email us at lessonplans@marcalpaper.com or visit us online at www.marcalsteps.com.



Standards Connections

Each lesson aligns to the following National Science Education Standards as defined by the National Committee on Science Education Standards and Assessment and National Research Council.

Activity	National Science Education Standards
Deforestation Discussion	NS.5-8.1 Science as Inquiry
	NS.5-8.3 Life Science
	NS.5-8.5 Science and Technology
	NS.5-8.6 Personal and Social Perspectives
	NS.5-8.7 History and Nature of Science
Deforestation Destroys	NS.5-8.1 Science as Inquiry
	NS.5-8.3 Life Science
	NS.5-8.5 Science and Technology
	NS.5-8.6 Personal and Social Perspectives
	NS.5-8.7 History and Nature of Science
How Much Do You Use?	NS.5-8.1 Science as Inquiry
	NS.5-8.5 Science and Technology
	NS.5-8.6 Personal and Social Perspectives
	NS.5-8.7 History and Nature of Science
Is Waste Trashing Your Town?	NS.5-8.1 Science as Inquiry
	NS.5-8.3 Life Science
	NS.5-8.5 Science and Technology
	NS.5-8.6 Personal and Social Perspectives
	NS.5-8.7 History of Nature and Science
Waste Not, Want Not	NS.5-8.1 Science as Inquiry
	NS.5-8.6 Personal and Social Perspectives
	NS.5-8.7 History of Nature and Science

Resources

Web Sites

- The Environmental Protection Agency's **Recycle City**:
<http://www.epa.gov/recyclecity>
Games and locations on this site help teachers to set different goals that can match up with lessons being taught in class.
- Kids Recycle! Waste Reduction:
www.kidsrecycle.org/reduction.php
An online resource for examining ways to reduce waste in homes and at school.
- Zero Waste Alliance:
www.zerowaste.org
A non-profit organization dedicated to developing, promoting and applying zero-waste strategies.
- **Kids Connected to Conservation and Culture**
<http://kidsandconservationblog.typepad.com/>
An environmental education resource focused on educating youth about environmental issues, such as deforestation, and what global citizens can do to curb these detrimental effects.



Books

- *50 Simple Things Kids Can Do to Recycle* by Earthworks Press
- *Down-to-Earth Guide To Global Warming* by Laurie David and Cambria Gordon
- *Gas Trees and Car Turds: Kids' Guide to the Roots of Global Warming* by Kirk Johnson
- *Tracking Trash: Flotsam, Jetsam, and the Science of Ocean Motion (Scientists in the Field)* by Loree Griffin Burns
- *True Green Kids: 100 Things You Can Do to Save the Planet* by Kim McKay and Jenny Bonnin

Educator's Instructions

The collection of activities can be used together in the sequence they are provided, as part of a week-long or month-long curricular unit. Alternatively, each activity can be used as a stand-alone lesson to supplement your own curriculum.

LESSON 1: DEFORESTATION DISCUSSION

Use this lesson to help students identify, define, and discuss the concepts related to deforestation and its environmental impact.

Duration: One 45-minute class period

Materials: Copies of the DEFORESTATION DISCUSSION activity sheet, pencils or pens, reference materials, and/or computers with Internet access

Procedures: Write the words from the DEFORESTATION DISCUSSION activity sheet on the board or on chart paper. Ask students what the words have in common. Explain that they will research each of the terms. As they define each word, tell them to think about what these words mean to them. Suggest that these three words are related to the environment.

Hand out the DEFORESTATION DISCUSSION activity sheet. Provide students with time to conduct research.

Have students work individually, in pairs, or in small groups to complete the activity sheet. Gather the class together to discuss their findings.

Kick off a conversation about how deforestation has created an environmental headache for the global climate and environmental resources. Research is ongoing about the harmful effects of deforestation. Given that 70% of the planet's animals live in the forest, the biggest impact is on the survival of these species. In addition to animals, the destruction of trees hurts the environment. Trees return moisture into the atmosphere as part of the water cycle. They also block the sun, helping soil stay moist. Without trees, temperature changes in forests harm the flora and fauna. Trees also play a role in the absorption of greenhouse gases. Fewer forests mean less oxygen returned into the air and more gases trapped in the atmosphere. This is believed to speed up the rate of global warming.

Extension: Have students research the types of wildlife at risk as a result of deforestation.

Assessment: Assess students on their ability to define each term and provide examples.

Educator's Instructions, *continued*

LESSON 2: DEFORESTATION DESTROYS

Use this lesson to help students learn where deforestation is occurring and what might happen in the future if it continues without reforestation.

Duration: Twenty minutes for assignment discussion, one class period for reflection, plus several days for research

Materials: Copies of the DEFORESTATION DESTROYS activity sheets, pencils or pens, maps, reference materials, and/or computers with Internet access

Procedures: Hand out the DEFORESTATION DESTROYS map. Explain how in South America the destruction of forests is an ongoing process. Share that this is partly for use of the trees as lumber and partly to clear land for raising cattle. The map shows the amount of forest lost in the Amazon rainforest in Brazil over a period of five years, from 2000 to 2005.

Hand out the DEFORESTATION DESTROYS activity sheet. Explain the task. Set aside time for students to work individually, in pairs, or in groups to conduct their research.

Once all research has been completed, gather students together to share and discuss their findings.

Extension: Have students suggest how to put an end to deforestation in the countries they researched.

Assessment: Assess students on their ability to articulate where deforestation takes place and its impact. Ask questions to check for understanding.

LESSON 3: HOW MUCH DO YOU USE?

Use this lesson to help students calculate how much paper waste they each generate at home.

Duration: One day, plus one 30-minute class period

Materials: Copies of the HOW MUCH DO YOU USE? activity sheets, cardboard boxes to collect paper waste, a scale

Procedures: Ask students to think about the many reasons for recycling materials at home. Talk about the ways that recycling can help the environment as well as everyday living. Brainstorm a list of reasons for recycling paper products that are used at home. Suggest to students that by reducing, reusing, and recycling paper products that they are saving trees that might otherwise be victims of deforestation. Explain that they are going to research how much paper waste is generated by each of them at home. Hand out the HOW MUCH DO YOU USE? activity sheet. Explain the task.

Extension: Conduct the same data collection experiment using other materials, such as aluminum cans or plastic materials.

Assessment: Assess students on their ability to articulate the benefits of reducing, reusing, and recycling paper. Ask questions to check for understanding.

Educator's Instructions, *continued*

LESSON 4: IS WASTE TRASHING YOUR TOWN?

Use this lesson to help students consider the impact of paper waste on their community and learn more about the community's paper recycling efforts.

Duration: Twenty minutes for assignment discussion, one class period for reflection, plus several days for research

Materials: Copies of the IS WASTE TRASHING YOUR TOWN? activity sheet, pencils or pens, computers with Internet access, local newspapers

Procedures: Distribute the handout. Assign students to conduct research individually or in pairs. Once all the forms are complete, gather the class to share and discuss results.

Extension: Encourage students to use the results to come up with a reduce, reuse, and recycle action plan. Invite a local official to visit the class. Have the class share their ideas with the official and pitch their solution ideas.

Assessment: Assess students on their ability to identify the community's needs and suggest solutions.

LESSON 5: WASTE NOT, WANT NOT

Use this lesson to help students express how they can support the environment through the improvement of community services.

Duration: One or two 30-minute class periods

Materials: Copies of the WASTE NOT, WANT NOT activity sheet, pencils or pens, a computer

Procedures: Ask students to name the parts of a business letter. Talk about the different reasons that a citizen might write a letter to a newspaper or city official to state an opinion on an issue. Invite students to suggest what they might write to someone to persuade them to reduce, reuse, and recycle paper products. Distribute the WASTE NOT, WANT NOT activity sheet.

Have students draft letters individually or in pairs. Sign off on each letter and provide students with an opportunity to finalize their letters.

Extension: Have students send their letters to community officials or a newspaper.

Assessment: Assess students on the completeness of their letters and messages about reducing, reusing, and recycling.

Deforestation Discussion

Directions: Research the following terms. Use a dictionary, encyclopedia, or the Internet to find the definition of each. Write your answers on the lines provided. Use another sheet of paper if necessary.

deforestation

desertification

ecosystem

endangered species

reforestation

global warming

ozone layer

CONTINUE 

greenhouse gases

rainforest

logging

climate change

erosion

recycling

reuse

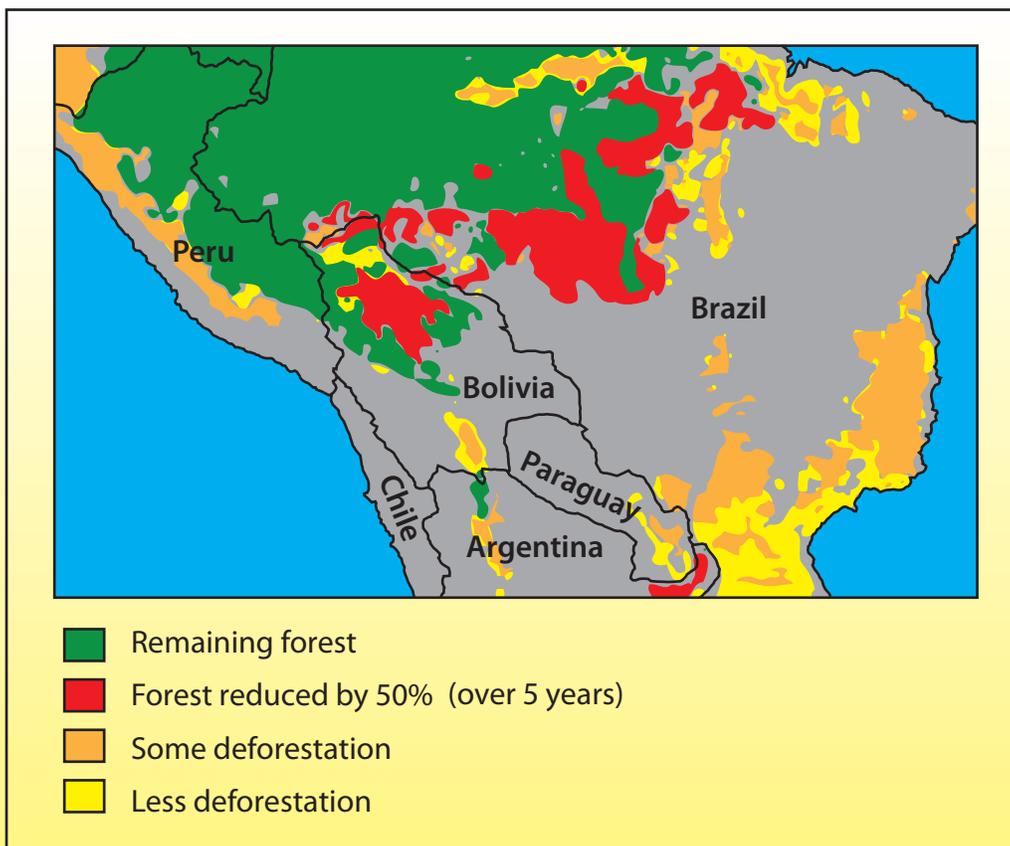
reduce

What do all of these terms have in common? Discuss with your classmates.

Deforestation Destroys

The Amazon Rainforest is located in South America. It is so large that it covers parts of many countries. The map below shows the extent of deforestation during a five-year period in the Amazon Rainforest. This kind of loss of forest cover takes place every year. Not only are the lives of forest animals endangered, but also the world's environment. A lot of the cutting down (or burning down) of the Amazon forest has been for the purpose of using the land for raising cattle.

Reduction of Amazon forested areas from 2000 to 2005



Look at the map. Notice that the forest was reduced as much as 50% in some areas.

- Which country has destroyed the most amount of forest? Which one the least?
- What do you think about deforestation in South America?
- If deforestation continues at this same rate, what may eventually happen?

CONTINUE 

Below is a list of the top 15 countries engaged in the most deforestation activity.

Directions: Choose one of the countries. Research the deforestation activity there. Use the questions below to help you gather information. Report on the deforestation activity in the country you explored.

Countries Involved in Deforestation		
Brazil	Indonesia	Sudan
Myanmar	Zambia	Democratic Republic of the Congo
United Republic of Tanzania	Nigeria	Zimbabwe
Mexico	Venezuela	Bolivia
Australia	Cameroon	Philippines

Research Questions

- Where is the deforestation taking place?
- What kind of forest is being destroyed?
- Why is the forest being destroyed?
- How is it being destroyed?
- What wildlife is being affected by the destruction of the forest?
- Are there efforts in the country to replant trees? If so, what are they?

Write up your findings. Use a map to show where deforestation is taking place and how it might expand if it isn't stopped.

How Much Do You Use?

Directions: Curious about how much paper you and your family use?

Place a cardboard box in each room of your home. Collect the recyclable paper waste that is generated by each member of your family for one day.

Use this sheet to record your findings as well as the findings of your classmates.

Weigh the paper collected from each classmate. Record your findings.

Classmate's Name	Pounds of Paper Waste	Classmate's Name	Pounds of Paper Waste

What is the average weight for all students? _____

What is the median weight? _____

What is the mode weight? _____

Estimate the average weight of paper waste for your community. To find the weight, multiply the average weight for the students in your class who collected paper by the total number of students in your entire school. _____

Estimate how much paper waste your community generates per week. _____

How much per year? _____

Is Waste Trashing Your Town?

Think about the impact of paper products used in your town or city on the environment. Interview city officials, conduct research online, and read your local newspaper to help you answer the following questions.

Directions: Write your responses on the lines provided or on another sheet of paper. Share your findings with your classmates.

1. Are there ecological issues related to how your community disposes paper products? Is there an impact on animals, the air, groundwater, lakes, rivers, etc.? Explain.

2. Is hazardous or toxic waste a problem in your community? If so, describe.

CONTINUE 

3. Do city offices and public areas have a plan for disposing paper products? If so, describe.

4. Have there been any campaigns or efforts in your community to change how paper products are removed and where this waste goes? If so, describe them.

5. Is there a recycling program for paper products in your community? If so, describe.

Waste Not, Want Not

Writing a letter lets you tell other people about something you think is important. Look at the format below for writing a business letter.

Directions: Write a letter to your local newspaper or an elected official, such as a city council member, mayor, or state or federal representative, to let them know how you feel about the importance of recycling, reusing, and reducing the use of paper products. Suggest that using recycled paper products prevents deforestation and reduces the speed of global warming. Your letter should be persuasive. Don't forget to state your opinion and support it with facts.

Use the template on the next page to help you draft your letter.

RECIPIENT'S ADDRESS—Write the name, title, the street address, and city of the person to whom you are writing here.

Joe Student
55 Main Street
City, State 01234

RETURN ADDRESS—Write your address here.

January 1, 2009

TODAY'S DATE

Mrs. Jane Doe
City Official
200 City Center
City, State 01234

THE GREETING—Write "Dear," followed by the person's title, last name and a colon (:)

Dear Mrs. Doe:

~~~~~  
~~~~~  
~~~~~  
~~~~~  
~~~~~

**THE BODY**—Write your message here. Don't forget to support your opinion with facts.

Sincerely,  
Joe Student

**THE CLOSING and SIGNATURE**—Sign your letter here. Use a word, such as "Sincerely," followed by a comma.

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Sincerely,

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