

# NOVEMBER 2005: NATURAL RESOURCES

## GREENTIMES TEACHER GUIDE

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This guide includes suggested cross-disciplinary activities, background information, and reproducible pages of discussion questions that relate to *Greentimes: Natural Resources*. We hope that these suggestions will demonstrate useful, curriculum-oriented ways for you to incorporate *Greentimes* into your classroom! Please feel free to tell us what you want to see in these guides in the future – just e-mail Heather at [hfreeman@greenscreen.org](mailto:hfreeman@greenscreen.org)!

### ART

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**Leaves:** Fallen leaves can be used as stamps and stencils for a fun art project. Distribute leaves and construction paper to each student. They can use these to decorate posters about trees. Here are some suggestions:

- Paint the veined side of the leaf and press it onto paper. This will leave an imprint on the paper of the leaf. Repeat the process with different shaped leaves and different colored paints. Note: too much paint will obscure the pattern of the veins.
- Press an unpainted leaf on the paper and paint over the edges of the leaf or draw around it. This will create a stencil that can be cut out and/or colored in.

**Recycling:** Recycling is typically assumed to be an act that requires taking things to a center where machines can process and mold old material into a new object. However, everyday items can be recycled in the household as well. Have students bring in trash mail, (i.e. flyers, catalogs, advertisements), bottle caps, wrappers and other miscellaneous items. Use them to create a collage or a picture. Bottle caps or ripped pieces of paper can be used for a mosaic. Paper grocery bags can even be used as the backdrop that the items will be glued on. Ask if students can think of any other way to reuse items at home (i.e. empty coffee jars can hold change, small jelly jars can be used as cups, etc)?

**Natural Resources:** Create a classroom book. Divide students into small groups and assign each group a topic featured in *Greentimes*. Have each group construct 2 pages: one with a picture illustrating their topic, and one with text that includes all the information that they have learned in *Greentimes* and beyond. For example, one group could write about fossil fuels while another group could write about plants.

### HANDS-ON SCIENCE

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**Compost Piles:** If you have any available space outdoors, create a classroom compost pile. A relatively simple process, you will need 2 large trash cans with lids, a watering can, a shovel, gloves, a soil thermometer, and green waste. Check out <http://www.cangc.org/documents/cookingUpCompost.pdf> for the complete process.

**Growing Plants in the Classroom:** *Greentimes* emphasized that trees are a natural resource that offers us food and oxygen. Explain to students that plants do the same thing. Small plants and vegetables can easily be grown in the classroom. Plants can even be planted without soil so that students can observe the beginning of the growth process. To find out how, visit <http://bizarrelabs.com/plant1.htm>



### SPOTLIGHT NORWAY

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Norway is often overlooked as one of the world's largest exporters of oil. It is also endowed with a large amount of natural resources, such as minerals, petroleum, hydropower and fish. Have students locate Norway on the map and look up basic information, such as its capital, what oceans and countries surround it, its size and its climate.

### BACKGROUND INFORMATION

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**Coal:** <http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/coal.html>

**National Parks:** [http://www.npca.org/wildlife\\_protection/](http://www.npca.org/wildlife_protection/)

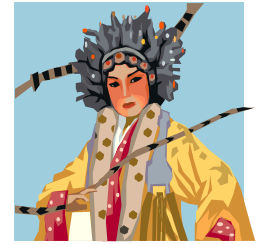
**Recycling:** <http://www.webschool.org.uk/webworld/roperr.html>

**Oil:** <http://www.pbs.org/wnet/extremeoil/teachers/>

## HISTORY

Integrate *Greentimes* into your history lessons by using the given articles, which feature subjects that have taken place in crucial time periods, to reinforce or introduce topics.

**Silk** has played an integral role in Chinese and world history. It has been an extremely valuable commodity ever since its discovery almost 5,000 years ago! Silk instigated battles and kidnappings and even helped to define the role of women, who at one point were required to spin silk to pay for their family's taxes in China.



- Visit [http://www.chateau-michel.org/making\\_silk.htm](http://www.chateau-michel.org/making_silk.htm) or <http://www.ancientroute.com/resource/cloth/silk.htm> for a quick overview on the history of silk.
- Why did the Chinese want to keep the production of silk a secret? What was the “Silk Road” and why were foreigners willing to pay so much for this material?
- What other types of commodities or ideas have historically caused conflict or competition that your class has studied this year? Discuss how these situations are similar or different.

**Cranberries** are an interesting part of local history. Cultivation of this local fruit began in the first decade of the 1800s, a significant period in American history. Use the discovery of this versatile and useful crop to talk about other important historical events in this decade.

- In 1803 the U.S. bought the Louisiana Territory for a mere \$15 million dollars. Discuss the importance of the **Louisiana Purchase** and why **Napoleon** agreed to sell us so much land for such a low price. Emphasize the size of this purchase. For more information: <http://lsm.crt.state.la.us/cabildo/cab4.htm>
- In 1808 **Beethoven** completed his **Fifth Symphony**. Have students research who Beethoven was and why he was unique. If possible, play a Beethoven piece in class. Discuss why music is important in culture. <http://www.lucare.com/immortal/>

**Native Americans** used leather for various purposes. What else do students know about Native Americans?

- How did they interact with the colonists? What can cultures share?
- What was their culture like: What types of beliefs and ideologies did they uphold? What types of foods did they eat? How did the colonists treat Native Americans? What types of rituals did they practice? How many languages did they speak? What resources were new to colonists? To the Indians?  
[www.sitalive.com/tg/hl/private/hltgNative.pdf](http://www.sitalive.com/tg/hl/private/hltgNative.pdf)

## GEOGRAPHY

### New England

Maple syrup and cranberries are both products that make New England unique. Have students create a map of New England, labeling each state and capital. Discuss what areas produce maple syrup, what areas produce cranberries, and what areas produce both. Locate and label the location where cranberries were first cultivated.

### Southeast Asia

Rubber trees are grown in Southeast Asia. Point this area out on a globe or map to students. Have students read the names of countries and capitals in Southeast Asia so that they can familiarize themselves with the area. After, create a list on the board of the important places that you talked about. Save the class list so that it can be added onto with locations discussed in the next *Greentimes*.



## WRITING

**Vocabulary:** Using either a fact box or an article, have students underline words in *Greentimes* that they do not know the meanings of. First, have them try to determine the meanings by context. Then, ask students to look up the definition of the word. Compile a class vocabulary list and have a *Greentimes* spelling bee!

**Writing Directions:** Students can practice writing directions by explaining how to make a simple cranberry recipe (cranberry muffins, cranberry sauce, etc). Prepare students for the assignment with the following experiment. Stand in front of the class and ask students to tell you how to prepare a peanut butter sandwich. Demonstrate the importance of detail. For example, if a student says put the peanut butter on the bread, stick your finger into the peanut butter jar instead of the knife. This could be a fun group project for younger students!

**Research:** The United States has many well-known national parks. Have students choose one park and write a paper about what makes it unique (i.e. animals and plants that live there, the geography or geology of the land, etc.)

## SUGGESTED READING

Energy from Oil and Gas (Facts About) (School & Library Binding) By Donna Bailey  
Aimed at a younger audience, this book makes a complex subject simple.

The Greenhouse Effect: Life on a Warmer Planet (Discovery Series) By Rebecca L Johnson  
Explains possible causes of the Greenhouse Effect and its impact on the planet.

Recycling (True Books: Environment) By Rhonda Lucas Donald  
This book offers statistics and elementary facts about recycling



## MATH

### Identifying common fractions, decimal points, and percents.

Here are some math problems students can do relating to the text in *Greentimes*. Some math is also incorporated into the reproducible sheets.

- 25 % of people in the United States recycle, express this number in fraction and decimal form.
- Salt accounts for 5% of the ingredients in a cake recipe. Circle numbers that are equivalent to this amount.  
0.50 5.0 0.05                      20/1 1/20 1/50

### Graphs

- Create a pie chart with the following data about the different amounts of material most commonly recycled. 30% is paper, 30% is glass, 20% is plastic, and 20 % is metal. What do you notice about the sum of these numbers?

### Multiplication

- If Jeremy has a recipe that makes 20 cranberry muffins, and he repeats the recipe 10 times, how many muffins will he have made?
- Alex loves nature. If Alex has visited 10 state parks a year for the past 10 years, how many parks has he visited in all?

### Integrating science and math

Maple syrup is finished at a temperature of  $7^{\circ}$  Fahrenheit above the boiling point of water.

1. What is the boiling point of water in F?
2. What is the boiling point of water in C?
3. What is the temperature of finished maple syrup in F?
4. What is the temperature of finished maple syrup in C?

### Answers to Fact Your Way:

- 1.True
- 2.False
- 3.True
- 4.False
- 5.True
- 6.False
- 7.True
- 8.True
- 9.True



Name \_\_\_\_\_

Date \_\_\_\_\_

***Greentimes* Natural Resources: Short Answer Sheet**

1. Name three ways that trees are used by humans.

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2. Joanna moves into a new house. Her new backyard has 2 trees in it. If the number of trees in her yard multiplies by two trees every year, how many trees will be in her backyard in 5 years?

3. What did Native Americans use cranberries for? Where are cranberries cultivated today?

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4. Where do we find coal? Is it a renewable resource?

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5. Why can maple syrup only be made in certain areas?

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6. To make maple syrup, you must cook the sap at a temperature of 7° Fahrenheit above the boiling point of water. If the boiling point of water is 212° Fahrenheit, what is the temperature of maple syrup when it is done?

7. What do we use oil for? What is its effect on the environment?

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8. What metal makes up most of the Earth's core? \_\_\_\_\_

9. What is recycling? Why is it important?

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10. If Americans throw away an average of 4.4 pounds of trash per day, how many pounds of trash do they throw out in 6 months?

11. What causes acid rain?

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**Greentimes Natural Resources: Definitions and Grammar****Part I: Match the correct word with its definition.****A**

\_\_\_ recycling

\_\_\_ glucose

\_\_\_ bog

\_\_\_ sugarbushes

\_\_\_ biodiversity

\_\_\_ game

\_\_\_ fossil fuels

**B**

A. swamp-like areas where cranberries are grown

B. groups of maple trees used for syrup making

C. the natural resources that the Native Americans and colonists hunted

D. the act of processing used materials for use in creating new products

E. fuels that come from living matter that died millions of years ago

F. the number and range of species, and the number of ecosystems in a given area

G. sugar molecules that we get food from

**Part II: Decide whether each sentence is a compound sentence or a simple sentence. Write your answer in the given space.**

1. Silk was first made in China. \_\_\_\_\_
2. Wool is made from the fleece of a sheep, and it can be used for many purposes. \_\_\_\_\_
3. Cotton is planted in the late spring, and it is ready to be harvested by the fall. \_\_\_\_\_
4. Leather is made from the hides of animals. \_\_\_\_\_
5. Gold is rare. \_\_\_\_\_

**Part III: Identify what verb tense each sentence is in. Write in the given space if it is in the past, present or future tense.**

1. Recycling conserves energy. \_\_\_\_\_
2. Last fall all the trees lost their leaves. \_\_\_\_\_
3. We will have coal for another 300 years. \_\_\_\_\_
4. Sugarmakers will make maple syrup in February. \_\_\_\_\_
5. Colonists and Native Americans hunted for game. \_\_\_\_\_
6. Hunting is a sport. \_\_\_\_\_
7. Mike is going to buy a silk shirt. \_\_\_\_\_

# Fact your way to the yummy pemmican!

**Instructions:**  
Follow the arrows as you answer each question. If you answer everything correctly, you will find the pemmican!

*Created by Emily & Janice*

