

Grade3

RECYCLING/CONSERVATION

OVERVIEW: In this unit students will be learning about natural resources and how these resources provide us with things we need to live. Students will have an opportunity to develop ideas on how to conserve natural resources by reducing, reusing, recycling, and replacing.

CONTENT STANDARD 3.4 – Earth materials provide resources for all living things, but these resources are limited and should be conserved.

GRADE-LEVEL CONCEPT: ♦ Decisions made by individuals can impact the global supply of many resources.

GRADE-LEVEL EXPECTATIONS:

1. Earth materials that occur in nature include rocks, minerals, soils, water and the gases of the atmosphere. Earth materials are natural resources that provide us with things we need to live, including food, clothing, water, air, shelter, land and energy.
2. Some natural resources are useful to people in their raw form (for example, fresh water, soil or air); other natural resources must be modified to meet human needs (for example, petroleum must be extracted from rocks and refined into gasoline, heating oil or plastics; wood from trees must be processed to make paper).
3. The supply of many natural resources such as fossil fuels, metals, fresh water and fertile soil is limited; once they are used up or contaminated they are difficult or impossible to replace.
4. Human actions can affect the survival of plants and animals. The products of the fuels people burn affect the quality of the air. Waste and chemicals from factories, farms, lawns and streets affect the quality of the water and soil.
5. Humans can extend the use of some natural resources by reducing the amounts they use (for example, driving less to reduce the amount of gasoline used; turning off faucets when not in use).
6. Humans can extend the use of some natural resources by recycling, or collecting used materials and processing them into new materials (for example, collecting waste paper or plastic bottles and making them into new products).
7. Humans can extend the use of some natural resources by reusing products instead of buying new ones (for example, washing containers that food is packaged in and using them again to store different foods or objects).
8. Humans can extend the use of some natural resources by replacing what they use (for example, planting new trees to replace those that are cut for lumber or paper; purifying dirty water from storm drains and discharging clean water back into a river).

KEY SCIENCE VOCABULARY: natural resources, recycle

CONCEPTS: Need to know about...

- Many of our natural resources are limited and once they are used up they will be impossible to replace
- People can extend the use of natural resources by reusing, reducing, and recycling
- Natural resources are used in our everyday lives, whether in its raw form or after it is processed
- Conservation is the key to saving our natural resources

SKILLS: Be able to do...

- Observing, describing, graphing, and recording properties of paper
- Predicting and comparing properties of paper
- Communicate observations through writing
- Identify different sources and kinds of pollution
- Develop ways to conserve our natural resources

MISCONCEPTIONS:

- We can never run out of natural resources.
If we do not do our part to help conserve our natural resources these resources can become impossible to replace.

BIG IDEA:

There are many earth materials in nature which are “natural resources”. From these natural resources we are able to make things we need in order to live. However, there is a limited supply of natural resources. It is our responsibility to keep our natural resources from becoming depleted. Therefore, we need to conserve these resources. We can do this by reusing, reducing, and recycling.

Cumulative questions:

What are natural resources and what can we do to conserve them?

ESSENTIAL QUESTIONS TO GUIDE INSTRUCTION AND ASSESSMENT:

- What are natural resources?
- How can we reduce the amount of natural resources we use?
- How can we reuse products to extend the use of natural resources?
- What can we recycle in order to conserve our natural resources?
- How can we replace some of our natural resources?

MATH SKILLS TAUGHT/USED:

- Graphing
- Measuring

TOPICS OR CONTEXT:**LESSON 1: Pre-Assessment**

- Students identify what they know about Recycling and Conservation

Embedded Task**LESSON 2:****Day 1: Observation of paper types and completion of chart**

- Students will explore some of the properties of different kinds of paper
- Students record observations in an organized table
- Students make predictions on absorbency

LESSON 3:**Day 2: Experiment #1 – Data Collection**

- Students compare different types of paper to find out which one holds the most water

LESSON 4:

Day 3: Experiment #1 – Data Analysis, Graphing, and Discussion

- Students make a bar graph comparing how many squares of each paper type were needed to absorb 25 mL of water
- Students explain in writing how they came up with results

LESSON 5:

Day 4: Experiment #2 – Planning – Which Paper Towel Brand is Best?

- Students discuss ways to define the “best” paper product
- Students observe and compare the properties of different brands of paper towels
- Students predict which towel brand will be the most absorbent
- Students plan an experiment to compare different brands of paper towels to find out which brand is the most absorbent
- Students write out steps they will use in the experiment

LESSON 6

Day 5: Experiment #2 – Data Collection

- Students perform experiment using written steps (from Day 4)
- Students record data on an organized table

LESSON 7

Day 6: Experiment #2 – Data Analysis and Discussion

- Students analyze and report data
- Students explain their conclusion in writing using data to support their conclusion
- Students make a bar graph to record their data

LESSON 8: Embedded Task

Day 7: Communicate Your Learning

- Students write a letter to family member explaining their experiment and the outcome along with recommendation

LESSON 9: Hooray for Trees!

- Students will describe the ways in which trees benefit people
- Students will make pictures or models depicting how trees may be used to improve the human-made environment

LESSON 10: We Need Trees

- Students will discuss and analyze a fictional story relating to the proper and improper use of natural resources.
- Students examine the importance of conserving natural resources.

LESSON 11: Stop the Pollution!

- Students will identify different kinds of pollution
- Students will identify sources of pollution
- Students will discuss and explain why it is important to keep the environment free of pollution

LESSON 12: Reduce, Reuse, Recycle

- Students will make necklaces using recycling paper material.
- Students will understand the importance of the 3Rs—reducing, reusing, and recycling.

LESSON 13: Culminating Activity: Field Trip to the Garbage Museum Celebration of our natural resources! Plant A Tree

Lesson 14: Post-Assessment

SIGNIFICANT TASK: EMBEDDED TASK “SOGGY PAPER”

Teacher Resource Books:

American Forest Foundation, Project Learning Tree: Environmental Education PreK-8 Activity Guide.
2004.

Non-fiction Trade Books:

- How We Use Paper, Oxlade, Chris. Raintree, Chicago, IL 2005.
- Paper, Oxlade, Chris. Heinemann Library, Chicago, IL. 2005.
- You Can Recycle, Walsh, Patricia. Pearson Scott Foresman Leveled Readers.

Fiction Books:

A Pig's Tale by Olivia Newton-John

The Day the Trash Came Out to Play by David M. Beadle

Just A Dream by Chris Van Allsburg

The Lorax by Dr. Seuss

HOOT by Carl Hiaasen

Judy Moody Saves the World by Megan McDonald

Johnny Appleseed, Steven Kellog, New York, William Morrow and Co., 1988.

Kenju's Forest, Yukio Morimoto, Australia, Collins Publishers, 1989.

Song of the Trees, Mildred D. Taylor, Bantam-Skylark.

Websites:

- <http://www.tappi.org/> - "Paper University"
- <http://www.straightdope.com/mailbag/mpapermaking.html> - Science Advisory Board
- <http://www.eia.doe.gov/kids/energyfacts/saving/recycling/solidwaste/aperandglass.html>
- <http://teacherlink.ed.usu.edu>
- www.earth911.org
- www.education-world.com
- <http://kids.nationalgeographic.com>
- www.unitedstreaming.com

Videos/DVDs:

"Earth Aid: Recycling"

"Earth Aid: Water Conservation"

"Pollution Solutions"

"Recycle Rex"