

Oakland Schools Curriculum Unit Plan
 Third Grade: Structure and Function

Unit :B Using Natural Resources

Big Picture Graphic

Overarching Question: What are natural resources and their uses?		
Previous Unit: Earth's Surface	This Unit: Using Natural Resources	Next Unit: Reduce, Reuse, and Recycle
Questions to Focus Assessment and Instruction: 1. What are the costs and benefits of using materials from the earth? 2. What are natural resources?		Intellectual Processes: Cause and Effect Describing Researching

Unit Abstract

In this earth science unit students identify the natural resources in the community around them as well as in other parts of the world. They determine how the natural resources are used in their home, in their school, and in the community around them (e.g., construction, heating, transportation, farmland, etc.). Students discover how we are dependent on natural resources and how this dependence impacts (positively and negatively) the natural environment.

Grade Level Content Expectations

Students will:

- identify natural resources (metals, fuels, fresh water, fertile soil, and forests) (E.ES.03.41).
- describe how materials taken from the earth can be used as fuels for heating and transportation (E.SE.03.32).
- describe ways humans are dependent on the natural environment (e.g., forests, water, clean air, earth materials) and constructed environments (e.g., homes, neighborhoods, shopping malls, factories, and industry) (E.ES.03.51).
- identify earth materials used to construct some common objects (bricks, buildings, roads, glass) (E.SE.03.31).
- identify technology used in the excavating of natural resources (S.RS.03.16).
- describe the effect humans and other organisms have on the balance of the natural world (S.RS.03.18).
- use data/samples as evidence to separate fact from opinion (S.RS.03.14).

NGSS (*Next Generation Science Standards*)

ESS3.B. Natural Hazards

- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) (Note: This Disciplinary Core Idea is also addressed by 4 – ESS3-2)

3-ESS3 Earth and Human Activity: Students who demonstrate understanding can:
3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*

[Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]

Key Concepts

constructed environment

earth material
manufactured material
natural environment
natural resource

Duration: 4 – 6 weeks *(These lessons are not yet available. See lesson & resource links below for activity suggestions.)*

Supplemental Materials

SCoPE Lesson 1
SCoPE Lesson 2
SCoPE Lesson 3
SCoPE Lesson 4
SCoPE Lesson 5
SCoPE Lesson 6
SCoPE Lesson 7
SCoPE Lesson 8
SCoPE Lesson 9
SCoPE Lesson 10

Recommended (not required) Instructional Resources

Student Resource

- Bang, Molly Garrett. *Common Ground: The Water, Earth, and Air We Share*. New York: Scholastic, 1997.
- Lauber, Patricia. *Be a Friend to Trees*. New York: HarperCollins, 1994.

Teacher Resource

- Bishop, Gerry, ed. *NatureScope: Geology*. New York: Macmillan/McGraw Hill, 1989.
- BSCS. *Investigating the Changing Earth*. Dubuque, IA: Kendall Hunt, 1999.
- Cuff, Kevin. *Stories in Stone – GEMS*. Berkeley CA: Lawrence Hall of Science, 1995.
- FOSS. *Earth Materials*. Hudson, NH: Delta Education, 1993.
- Gregg, David. *Down to Earth*. Fresno, CA: AIMS Education Foundation, 1987.

Web Links:

DNR - Michigan Department of Natural Resources: <http://www.michigan.gov/dnr>

The Greens – A site for kids about looking after the planet.
<http://www.meetthegreens.org/>

The Green Squad – Kids take action for a healthier school that will not harm the environment.

http://www.nrdc.org/greensquad/intro/intro_1.asp

Video Links:

Learning about Natural Resources

<http://app.discoveryeducation.com/search?Ntt=natural+resources&N=18341>

<http://app.discoveryeducation.com/search?Ntt=manufactured+items+from+natural+resources>

Lesson Links:

Lesson on *What are Natural Resources*

<http://www.calrecycle.ca.gov/Education/curriculum/ctl/K3Module/Unit1/Lesson1.pdf>

Lesson on *People Using Natural Resources*

<http://www.calrecycle.ca.gov/Education/curriculum/ctl/k3module/unit1/lesson2.pdf>

Forest lessons http://www.forestinfo.org/lesson_plans/3-5

Sample Performance Assessments

1. Research and analyze given samples of earth materials for possible use in construction. Select an earth material and write a letter to a construction company explaining the advantages and disadvantages of building on or with that type of material (E.SE.03.32, E.ES.03.51, E.SE.03.31, S.RS.03.16, S.RS.03.14).
2. Create a graphic organizer listing natural resources, how they are used, and how their use effects the natural world (E.ES.03.41, S.RS.03.18, E.SE.03.32).
3. Working in pairs, research one natural resource and trace its cycle, focusing on its collection, its processing, products derived from it and their uses, and any opportunities for conservation (E.ES.03.41, E.SE.03.32, E.SE.03.31, S.RS.03.16, S.RS.03.18, S.RS.03.14).

Connections

Social Studies -As students analyze the use of natural resources, they gain an understanding of their social and economic costs.

Unit B: Natural Resources Pretest

1. A material found in nature and used by living things is called a
 - a. Resource
 - b. Mine
 - c. Product
 - d. House

2. Natural Resources can be found below, on, and above the ground. True or False (circle one)
3. Humans depend on the environment to meet **ALL** of their needs. True or False (circle one)
4. There is an endless supply of all natural resources on the earth. True or False (circle one)

5. Name at least two ways that humans depend on the environment to meet their needs.

6. Which of these carries away the most soil?
 - a. Fires
 - b. Floods
 - c. Earthquakes
 - d. Volcanoes

7. Fossil fuels are formed from _____?
 - a. Plants and animals
 - b. Garbage
 - c. People making them
 - d. They have always been there

8. The careful use and preservation of our natural resources is called
 - a. Resource renewal
 - b. Natural resource
 - c. Natural event
 - d. Conservation

9 & 10 Use the words in the box to fill in the blanks

* renewable resource * nonrenewable resource

9. A _____ is a resource that will never run out and can't be used up or it can be replaced in a human lifetime.

A _____ is a resource that will be used up one day.

Answer Key

1. a – resource
2. true
3. false
4. false
5. Answers will vary
6. b – floods
7. a – plants and animals
8. d- conservation
9. renewable resource
10. nonrenewable resource

Natural Resource Flip Charts and Weblinks

Lesson Title:

Where did that pencil come from? The study of Natural Resources.

(This is a Promethean Planet Weblink) <http://www.prometheanplanet.com/en-us/Resources/Item/200345/where-did-that-pencil-come-from-the-study-of-natural-resources#.U8v8QpRdVJ1>

This lesson can also be found at the following site:

<http://www.econedlink.org/lessons/index.php?lid=303&type=educator>

Lesson Description:

Students will list the goods that can be made using natural resources; identify which natural resources contribute the production of a particular good; and identify natural resources located in selected map's physical features.

Lesson Title:

Conserving the Arctic National Wildlife: Decisions and Debate

(Promethean Flipchart)

<http://www.prometheanplanet.com/en-us/Resources/Item/43580/conserving-the-arctic-national-wildlife-refuge-decisions-and-debate#.U8v9pZRdVJ0>

Lesson Description:

Essential Question: Who should decide whether to preserve ANWR in its natural state? This flipchart is a companion to a complete lesson plan on the Arctic National Wildlife Refuge Debate whether to open the protected area of the refuge to drilling. The flipchart contains the PDF lesson, visuals, ACTIVote questions for discussion, and background on different individuals and groups that are stakeholders in the ANWR decision.

Lesson Title: Natural Resources - How Do We Use Them?

<http://www.prometheanplanet.com/en-us/Resources/Item/44485/natural-resources-how-do-we-use-them#.U8v ipRdVJ0>

Lesson Description: This flipchart contains a lesson on Natural Resources. It walks students through allocating natural resources in an ever changing world. Flipchart includes writing prompts at the end of the lesson. Lesson taken from TeachersDomain.org. Written in Inspire.

3rd Grade Earth Science Engineering Project

Design a water filtration system to improve the quality of drinking water.

<http://www.tryengineering.org/sites/default/files/lessons/filtration.pdf>

Time Needed: Two to three 45 minute sessions

Summary:

Filtration systems solve many problems throughout the world. One big issue filtration takes on is to improve the quality of drinking water. Students will work in teams to design and build a filtration system to remove dirt from water. They will use everyday items to build their filter. They will then test it present their findings to the class.

Engineering Connection: Engineered filtration systems have impacted the availability of safe drinking water around the world. Students will learn about engineering design and how to plan and construct a filtration system using everyday material.. They will learn the importance of teamwork and working in groups.

Click the link below and follow the steps in the lesson provided.

<http://www.tryengineering.org/sites/default/files/lessons/filtration.pdf>

Unit B: Natural Resources End of Unit Assessment

1. Which of the following is NOT a natural resource?
 - A. Plastic
 - B. Trees
 - C. Water
2. Humans depend on the environment to meet their needs. Which is a natural example?
 - A. Homes
 - B. Forests
 - C. Supermarkets
3. Which of the following would be a negative effect on the Earth's environment?
 - A. Driving to school in a car each day
 - B. Riding your bike to school each day
 - C. Sledding downhill after a snowstorm

Explain how the answer you chose will have a negative effect on the Earth's environment.

4. Natural Resources are found below, on, or above the ground. Give an example from each location.

Below ground _____

On the ground _____

Above ground _____

5. Name a natural resource that is found below ground and describe at least 2 ways it can be used.

6. Which of these is the best way to conserve water?
 - A. Buy bottled drinking water
 - B. Lower the cost of water
 - C. Take shorter showers

Directions: Use the words from the word box to complete the chart below.

Coal	natural gas	water	wind
Oil	sun	wood	

Renewable Resources	Non Renewable Resources
7.	11.
8.	12.
9.	13.
10	

ANSWER KEY

1. A plastic
2. B forest
3. A driving to school each day
4. *Possible answers:*

Below ground: mineral deposits (iron ore, bauxite, and diamonds), energy reserves (petroleum, natural gas, and coal), soil nutrients (phosphorus, nitrogen, and potassium), wildlife (gophers and earthworms) and ground water.

On the ground: water (rivers, lakes, and oceans), vegetation (trees, bushes, and grass), and wildlife (rabbits, deer, fish, and crawling insects).

Above: air, precipitation (rain, snow, sleet, and hail), solar radiation (sunshine), wildlife (birds and flying insects), and outer space (meteors, twinkling stars, and a full moon).

5. Answers will vary
6. C take shorter showers

Renewable Resources	Non Renewable Resources
7. water	11. coal
8. wind	12. oil
9. sunshine	13. natural gas
10. wood	