**The Relationship Between Agriculture and the Environment**

4th – 8th Grade (4-8)

Pillar: 1 b. Discover how natural resources are used and conserved in agriculture.

Student Learning Objectives

1. Define natural resources and raw materials
2. Identify the natural resource that are used to produce common products
3. Explain how natural resources are conserved in agriculture

Tools, Equipment, and Supplies

Dry erase board, markers, eraser

Bingo cards (30)

Natural Resources cards (1 set)

B, I, N, G, O cards (1 set)

Two small boxes or envelops to hold the cards

Coins to mark bingo squares

Cotton t-shirt

Paper Towels

Book

Envelope

Newspaper

Latex Balloon

Leather Baseball

Wool Sweater

Leather Shoe

Beeswax Candles

Feather Pillow

Aluminum Soda Can

Tin Soup Can

Metal Nuts and Bolts

7Up Plastic Bottle

Plastic Milk Jug

Plastic Bag

Carrot

Banana

Hamburger

Ice Cream

Bricks

Concrete

Glass Window

Glass

Coal

Gasoline

Interest Approach

*Divide students into four groups and give each group 7 random items, or photos of items, from the list below.*

Cotton t-shirt

Paper Towels

Book

Envelope

Newspaper

Latex Balloon

Leather Baseball

Wool Sweater

Leather Shoe

Beeswax Candles

Feather Pillow

Aluminum Soda Can

Tin Soup Can

Metal Nuts and Bolts

7Up Plastic Bottle

Plastic Milk Jug

Plastic Bag

Carrot

Banana

Hamburger

Ice Cream

Bricks

Concrete

Glass Window

Glass

Coal

Gasoline

Today, we are going to do an activity entitled “what kind of natural resource am I?” Let’s go over the instructions together to make sure this activity is successful. We will start by grouping ourselves in seven groups of four youth. On the table in front of you are 7 random items. Your task as a group is to sort the seven items into four categories Plants, Animals, Rocks and Minerals, and Fossil Fuels. What questions do you have? *(Pause and answer questions)* Go!

*Allow students five minutes for this activity. After five minutes, ask if group has not categorized an item. If some have not, you may give hints or ask the group hints to help them figure the correct category.*

That was great work. As we all were able to see, there were some items that were pretty easy to categorize. Now let's look at these items more closely and the definition of natural resources.

Objective 1. Define natural resources and raw materials

Ever since the earth was inhabited, humans and other life forms have depended on things that exist freely in nature to survive. These things include water, land, soils, rocks, forests, plants, animals, fossil fuels and minerals. They are called Natural Resources and are the basis of life on earth.

Water, land, soils, rocks, forests, plants, animals, fossil fuels and minerals are natural, and they exist in nature. No human created them. We tap into their supply to survive and also to function properly. Natural resources are all connected in a way. Therefore if one is taken away, it will affect the supply or quality of all others. For example, if water is eliminated from an area, plants, soils, animals and even the air in that area will be affected negatively.

Sometimes, natural resources can be used as raw materials to produce something. For instance, we can use a tree from the forest to produce timber. The timber is then used for pulp for paper and paper products. In this scenario, the tree is the raw material.

Now let’s play a game. The game is called Natural Resource Bingo.

Objective 2. Identify the natural resource that used to produce common products

*Distribute a BINGO card and coins to each student.*

The rules of the game are to match the letter card and natural resource card to an item on your BINGO card. You will need to match 5 in a row horizontal, vertical, or diagonal. I will randomly pull a letter card and a Natural Resources card. For example: “B, Fossil Fuels,” or “N, Plants,” or “I, Animals.”

*Make sure you write the combination that you call on the white board, so you can double-check a winning card*. *Return the cards to their receptacles after you have finished calling it and writing it on the board.*

If you have a matching letter and natural resource cover **one item** on your card that is made from that resource and is in the correct letter column*.*

*(Note that it is possible for a student to have two boxes that match the combination called. However, on any one turn, the student can only mark one item. Also, note that some of the objects are made of many natural resources. For example, paper is made from trees, but water and fossil fuels are also used in the paper-making process. For this game, we will focus on the primary natural resources used to make the object. For example, although the paper-making process involves other natural resources, paper is primarily made from plants.*

Before drawing another combination of cards, tell students that they need to check the work of the other students in their group. They have the opportunity to challenge another student if they don’t think they have made a correct choice. If there is a challenge, use this as an opportunity to discuss that object and the natural resources used to make it. Once all challenges have been discussed, continue with another card combination.

We will continue to draw cards and play until someone gets five in a row and yells, “bingo!”

*When someone yells, “bingo,” check their card to make sure that they have identified the correct natural resource for each item used to make a bingo. If they have not, tell them which one(s) is incorrect and resume the game.*

*Allow students ten minutes for this activity.*

Objective 3. Explain how natural resources are conserved in agriculture

Now that you can define natural resources and raw materials and identify the natural resource that used to produce common products, let’s think about how agricultural producers conserve our natural resources.

What natural resources are used by agricultural producers?

*Possible answers: soil, water, plants, minerals, fossil fuels*

How do agricultural producers use natural resources?

*Possible answers: soil to grow plants, water for animals and plants, plants for food, fiber, and energy, minerals for adding nutrients to soil, fossil fuels for tractors and other machinery*

How do farmers conserve natural resources?

*Possible answers: soil- use cover crops to prevent topsoil from blowing away in wind or washing away in rain. Water- only irrigate when needed, don't irrigate before a rain shower, Plants- Producers generally don't plant more than what they'll need to grow. Minerals- limiting the amount of additives placed in the soil and adding just what plants need. Fossil Fuels- use wind, solar, and hydro energy so they're not only dependent on fossil fuels*

Review/Summary

*Recap major points.*

What is an example of a natural resource?

*Possible answers: water, land, soils, rocks, forests, plants, animals, fossil fuels and minerals*

Which natural resource do you use the most?

*Possible answers: vary from student to student*

Why is it important to conserve natural resources?

*Possible answers: vary from student to student*

Alternative Activity:

Activity 1.1.1 Basic Provisions

Purpose:

In this activity we take a look at the most basic needs of humans, which are food, clothing, and shelter. Due to technology you might notice more additions tot his list, such as phones or Television shows. This is something we often take for granted due to advancements in society.

Materials:

* CASE Handout
* Pencil
* Provision Note Cards

Procedures:

1. Students will be placed in groups of four, and handed the worksheet to read through.
2. After reading the purpose and procedures, then they will be sent out to gather one blue note card per student.
3. The students will categorize them as Food, Clothing, or shelter and will answer the questions.
4. The students will then start Part 2, which will have each of them collect 2 yellow cards. While they will also categorize the cards, they will also now be allowed to trade with one group up to 2 items to fill all of their needs. Have them answer questions before moving on.
5. The students will start Part 3, which has them go back out to get three green cards. They are allowed to trade up to four items with multiple groups now, and will need to categorize their items into four categories, which are food, shelter, clothing, and luxury. Please have them answer questions.

References

Adapted from an activity by SCARE, School and Community Assistance for Recycling & Composting Education, Glen Ellyn, Illinois. <http://www.bookrescue.org/>

California Integrated Waste Management Board. (2007). *K-3 Module, Unit 1: Conserving Natural Resources.* Retrieved October 15, 2007 from <http://www.ciwmb.ca.gov/Schools/Curriculum/CTL/TOC.htm#K3Module>