



UNIT 7: ENVIRONMENT

Farmers Love the Land

Grade level: Primary

NATIONAL STANDARDS

NL-ENG.K-12.2

NS.K-4.3

NS.K-4.4

Student Learning Objectives

At the end of this lesson, students will be able to:

1. Describe the importance of water, soil, and air.
2. Define natural resources.

Time: 50 minutes

Tools, Equipment, and Supplies: Writing surface, copies of Activity Sheet 21:1, markers/crayons

Key Term(s): Natural resources

Background Information

Farmers use **natural resources** to produce our food and fiber. Soil is needed to grow crops or grass for livestock to eat. Clean water and air are required for both plants and livestock.

Agriculture is a sustainable industry. This means farmers do things to maintain or prolong **natural resources**. These include management practices such as strip cropping, terracing, organic farming and crop rotation.

Because it takes 100 years for nature to replace one inch of topsoil lost to erosion, farmers must act as stewards of the land. By protecting the soil now, farmers can continue making a living from the land and enable future generations to reap an adequate harvest.

Interest Approach

Farmers absolutely love their land. They love their land so much that they take extra special care of it, just like your mom and dad take care of you. Listen quietly to a conversation between Maria and our expert, Cob, as he explains how much farmers love their land.

Read "Farmers Love the Land" to students. You may want to reproduce copies of the story so students can follow along.

OBJECTIVE 1: Describe the importance of water, soil, and air.



NOTES

There were a lot of lessons in the story we just heard. Let's review some of the key points. Where do soil, water, and air come from?

Listen to a few responses and comment positively on each.

We are on the right track. They come from nature. We can't make any of them.

Why do we need water?

Listen to a few responses and comment positively on each.

What about soil? What is the purpose of soil?

Listen to a few responses and comment positively on each.

And air? Why do we need air?

Listen to a few responses and comment positively on each.

How do farmers take care of these very important things in our life?

Answers may include water conservation, no till farming, precision farming, and plants to supply oxygen.

Use a Little Professor e-Moment®. Have students pair up and ask them to share with each other the importance of soil, water, air, and sunlight.

OBJECTIVE 2: Define natural resources.

Again, soil, water and air are **natural resources**, which means that they come from nature and cannot be manufactured. We are all very lucky that farmers take care of our **natural resources**. Let's work on an activity that will help us get a better understanding of **natural resources**.

*To review the importance of soil, water and air, pass out copies of the Activity Sheet 22:1, "Natural Resources for Plants." Make sure you use the word bank at the bottom of the sheet. The word bank contains each of the **natural resources** needed for plant growth.*

When I say GO, take the next three minutes to write in each of the **natural resources** necessary for plant growth. The natural resources are in the word bank. Ready – GO.



NOTES

Good job!

Now, let's draw a line from each of the fact boxes to the **natural resource** they describe.

Good! Finally, let's color the picture.

Give ample time.

Great job!

SUMMARY/REVIEW

After all of our hard work today, I guess we are all land lovers too. Let's close out the day by playing a little game.

Use a Jeopardy e-Moment® to end class. The Jeopardy e-Moment takes some time to set up. Be sure to have questions prepared and the proper supplies.

REFLECTIVE REVIEW QUESTIONS:

- What were the **natural resources** Cob mentioned in the story today?
- Plants need sunlight, soil, water and air. In what ways are we similar to them?

Looks like you all have a really good grasp of the importance of soil, water, air and sunlight. It also looks like you have a great understanding of how the farmer helps protect these valuable natural resources. Make sure you share what you learned with someone else when you go home today.

APPLICATION

APPLICATION 1: Make a dirt cake. You'll need:

- A 20-oz. package Oreo cookies
- 8-oz. package low-fat cream cheese
- 1/2 stick low fat margarine
- 1 c. powdered sugar
- 2 pkg. instant vanilla pudding (six-serving package)
- 3-1/2 c. milk
- 12-oz. container frozen whipped topping
- Large bowl
- Measuring cups
- Food processor (or small zipper-closed plastic bags for each student)



NOTES

- Large mixing spoons
- Sand pail and shovel

1. Crush the cookies in the food processor.
2. Cream the cheese, margarine and sugar.
3. Mix the pudding using the 3-1/2 c. milk.
4. Fold together the cream cheese mix, pudding and whipped topping.
5. Layer into a plastic flowerpot: cookies, pudding mix, cookies, pudding mix. End with the cookies on top. Use a CLEAN plastic pot only. Ceramic pots contain lead!
6. Lay some gummy worms across the dirt. Or insert a silk or plastic flower for decoration.
7. Serve with a plastic sand pail shovel. Or have students crush two or three cookies in a plastic bag. Layer into single serving cups (clear cups will show the layering).

("Great Pumpkins," New York State Agriculture in the Classroom Program)



NOTES

Farmers Love the Land

Maria had just come from soccer practice. As she was putting her water bottle on the shelf, she noticed that Cob had returned. This time he was carrying a large pail of soil, a jug of water and a balloon.

"What's this stuff doing here? Get this mess out of here before my mom sees it," Maria said.

"Don't call it *stuff*. These are *natural resources*," Cob said. "They are very important. After all, you wouldn't be alive without them."

"Well, I'm sure glad I had water at my soccer practice. I got really thirsty."

"That's not surprising," Cob said. "Your body is more than half water. Water is the most important mineral of all—you could live for only a few days without it. But you're not the only one who needs water," Cob continued. "Look outside. It hasn't rained in three weeks. The grass is brown."

"I guess I never gave it much thought. But I guess plants need water to live, too," Maria said.

Cob nodded. "Water helps plants move the food they need from their roots to their stems and leaves. Without water, there wouldn't be any agriculture—and there wouldn't be any food." Then he added, "I bet there's another thing you don't know about water. It's the oldest thing in this room."

"Older than my great-grandmother's locket?" Maria asked.

"Only a couple million years. In fact, the water you used to take your shower this morning has the same molecules that were in the water the dinosaurs drank. Water is constantly being recycled—and we'll never have any more. So we need to make sure the water we have stays clean."

Then Maria said, "Well, if we're trying to keep things clean around here, what's that pile of dirt doing in the middle of the floor? If my mom sees that, she'll be really upset."

"Your mom may call it *dirt* when it's tracked on her clean floor or it's all over your hands," Cob said, "but you should really call it *soil*. And believe it or not, you couldn't last long without it, either. Soil holds plants in place in the ground. It holds water in the ground so plant roots can drink. It also holds minerals that plants need for food and growth. Without soil, nothing could grow. And that means no tomatoes for your salad, no wheat for your bread and no oranges for your orange juice," Cob said.

"But your mom is right about one thing—it's important to keep soil in its place. Otherwise, when it rains, soil gets washed into rivers and lakes. It can clog drains and lead to flooding. It can even slide down the side of a mountain in a landslide. Farmers take care of their soil."



NOTES

Maria said, "Then why does that farm outside of town have fields that are filled with brown corn stalks? It sure looks ugly."

"That's what's left of last year's corn crop," Cob said. "The farmer leaves the stalks there all winter so the soil won't blow away in the wind or wash away in a storm. In the spring, a special machine allows him to plant the new corn seeds right through the old stalks. That's called *no-till* farming. All over the country, farmers are doing things like this—and it really works. There's much less soil erosion today. The stalks also decompose in the soil and return nutrients to it."

"Okay," Maria said. "I understand about the water and the dir... I mean soil. But what's with the balloon?"

"It's not the balloon. It's what's inside it—air."

"I know why air is important. If I couldn't breathe, I couldn't live for five minutes."

"Right," Cob said. "So you should thank a plant every time you take a breath. You know, air isn't easy to keep clean because it travels so quickly. Polluted air can blow a long way. Luckily, green plants help clean the air. They soak up carbon dioxide and release oxygen. That's called *photosynthesis*. Sunlight makes it all happen," Cob said.

"Gee," Maria said. "I never knew that water, soil and air were so important. Come to think of it, there's a place where our back yard is eroding. Maybe tomorrow you can help me go out there and plant a tree."



ACTIVITY SHEET 21:1

Natural Resources for Plants

Use the words from the word bank to label the natural resources necessary for plant growth. Draw a line from the fact box to the natural resource it describes.

Fact Box

Moves the plant's food from the roots to the stem
Without it, plants turn brown and die

Fact Box

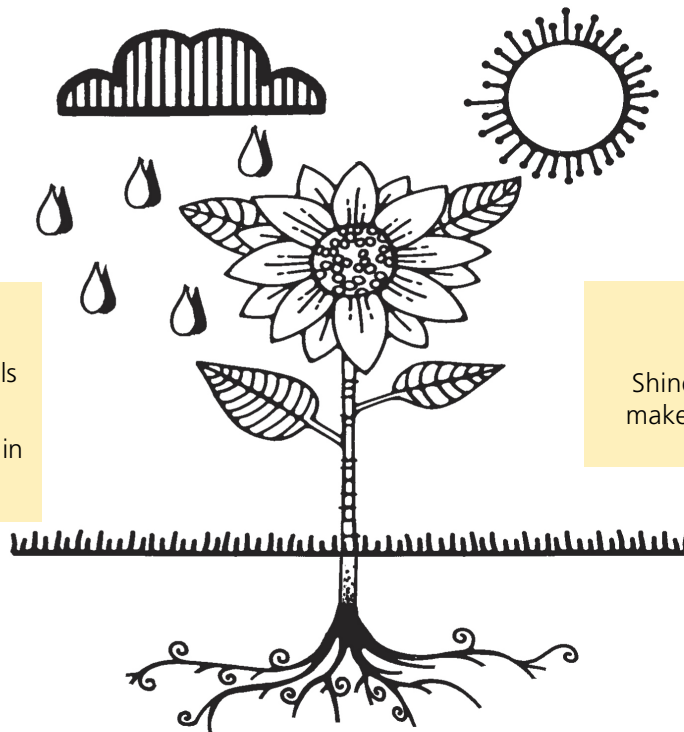
Cleaned for us by plants
Gives plants the carbon dioxide they need to live

Fact Box

Keeps water and minerals near the plant's roots
Holds the plants in place in the ground

Fact Box

Shines on the leaves to make food for the plant



Word Bank

air

sunlight

soil

water