

**RELAX!
HERE'S A LESSON
WORTH TEACHING.**

If Earth were an Apple

Appropriate for All Ages



RESOURCES AVAILABLE TO TEACHERS

Other teaching aides are also available including:

- Videos
- Posters
- PowerPoint Presentations
- Visual Aids
- Full Curriculum for Teachers
- Activities

Visit our website to order your support materials today. The time you invest in our cause will come back to you many times over as you see the eyes of both young and old audiences respond to the information you share.

www.nutrientsforlife.org

YOUR VOICE OUR RESOURCES

Nutrients for Life is a nonprofit organization that provides information and resources to educators and individuals like you, to help inform the public about the vital role that fertilizer plays in feeding the world. The information we have compiled is science-based and user-friendly. It has been successfully implemented by educators across the country.

Through a grassroots effort, we can spread the word about soil health to students of all ages and to adult organizations that are always looking for programs. Our story is not only important, but it is interesting and serves a vital role in educating consumers and decision-makers in the future.

**IF YOU
DON'T TELL
YOUR STORY,
WHO WILL?**

**Your story matters.
Soil science matters.**



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IMAGINE EARTH AS AN APPLE

Here is a quick, but effective lesson you can use at a moments notice.

Visual aids: knife, apple, cutting board, world, and paper plate.

This lesson is found in NFLF's *Nourishing the Planet in the 21st Century* curriculum.

When going to the classroom, bring a copy of the curriculum and accompanying poster to gift to the teacher. All NFLF resources are free.

PROCEDURE



1. Explain that the apple represents Earth. Cut the apple into four equal parts. Explain three of the parts represent Earth's 70 percent water (or approximately $3/4$). Set the three parts aside. The last $1/4$ piece represents Earth's land.



2. Remind students that this relatively small amount of land must be put to many different uses. Not all the land can be used for farming. Ask students for examples that cannot be farmed. --Examples: desert, arctic, swamps, mountains, urban areas.



3. Use the knife to cut the $1/4$ piece of apple in half. Now you have two $1/8$ pieces. One $1/8$ piece represents the land that is mountains, Arctic, Antarctic and desert.



4. With the remaining piece cut it in half two more times. Set one $1/32$ piece aside. The other 2 pieces represent cities, land that is too wet, land that is too dry and land that is too rocky.



5. The last $1/32$ piece (or 2%) represents the land that is suitable to produce the world's food. Point out that the skin on this small piece of apple represents the tiny layer of topsoil that we depend on to grow food.



To help you visualize the presentation visit the following link:

<https://vimeo.com/128288736>

OVERVIEW

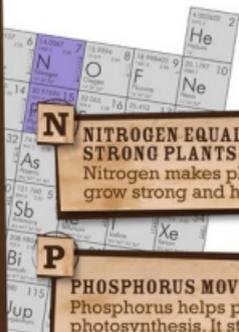
The apple is used to model the Earth. Students learn that just $1/32$ of the earth surface is devoted to farmland. They discuss what sacrifices may be needed to feed a larger population. The activity demonstrates how we as a society use land. The amount of land on Earth stays the same, so as the world's population gets larger, it becomes even more important that we make wise decisions about how it is used.

MAJOR CONCEPTS

- Only a small portion of Earth's surface is used to grow food
- The world population is growing at a steady rate
- Unless food productivity increases, more land will have to be farmed
- Fertilizers help increase food productivity

NUTRIENTS FOR LIFE

Humans and plants need many of the same nutrients to grow big and strong. Humans need a variety of proteins, carbohydrates, minerals, and vitamins to stay healthy. Besides the primary nutrients NPK, plants need small amounts of secondary nutrients, such as calcium and sulfur, and micronutrients, like iron and zinc.



N
NITROGEN EQUALS STRONG PLANTS
 Nitrogen makes plants grow strong and healthy.

P
PHOSPHORUS MOVES ENERGY
 Phosphorus helps plants with photosynthesis. It stores and moves energy around the plant.

K
WATER IS POTASSIUM'S FRIEND
 Potassium helps plants control and use water efficiently.



NUTRIENTS COME FROM THE SOIL THAT HELP THE PLANT GROW AND PRODUCE FOOD



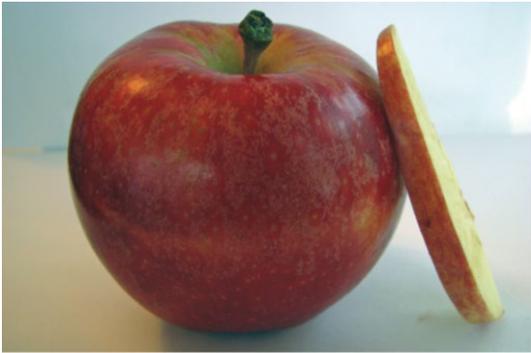
NUTRIENTS COME FROM FOOD GROWN IN THE SOIL

K
POTASSIUM HELPS THE HEART
 Humans need potassium, like plants do. Potassium helps control muscles and the rhythm of the heart.

Fe
IRON HELPS MOVE OXYGEN
 Iron helps the body make hemoglobin that moves oxygen and hemoglobin through the blood. This is similar to phosphorus moving energy around the plant.

Ca
CALCIUM EQUALS STRONG BONES
 Calcium helps humans have strong bones, like nitrogen helps plants have strong stalks.





CAN AN APPLE SLICE FEED THE WORLD?

Materials Needed: Knife, Apple, Cutting board/paper plate

Overview

The apple is used to model the Earth. Students learn that just 1/32 of the earth surface is devoted to farmland. They discuss what sacrifices may be needed to feed a larger population. The activity demonstrates how we as a society use land. The amount of land on Earth stays the same, so as the world's population gets larger, it becomes even more important that we make wise decisions about how it is used.

Major Concepts

- Only a small portion of Earth's surface is used to grow food.
- The world population is growing at a steady rate.
- Unless food productivity increases, more land will have to be farmed.
- Fertilizers help increase food productivity.

PROCEDURE

1. Explain that the apple represents Earth. Cut the apple into 4 equal parts. Explain three of the parts represent Earth's 70 percent water (or approximately 3/4th) Set the 3 parts aside. The last 1/4th piece represents Earth's land.

2. Remind students that this relatively small amount of land must be put to many different uses. Not all the land can be used for farming. Ask students for examples that cannot be farmed--Examples: desert, arctic, swamps, mountains, urban areas.
3. Use the knife to cut the $\frac{1}{4}$ piece of apple in half. Now you have two $\frac{1}{8}$ pieces. One $\frac{1}{8}$ piece represents the land that is mountains, Arctic, Antarctic and desert.
4. With the remaining $\frac{1}{8}$ piece cut it in half two more times. Set one $\frac{1}{32}$ piece aside. The other 2 pieces represent cities, land that is too wet, land that is too dry and land that is too rocky.
5. The last $\frac{1}{32}$ piece represents the land that is suitable to produce the world's food. Point out that the skin on this small piece of apple represents the tiny layer of topsoil that we depend on to grow food.