

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

Exploration of Soil

Appropriate for Elementary Age Students



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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Exploring Soil Composition

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

Visual aids: Soil sample (this can be from a field, lawn or garden) print out the diagram for sorting (available on the website), optional magnifying glass

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

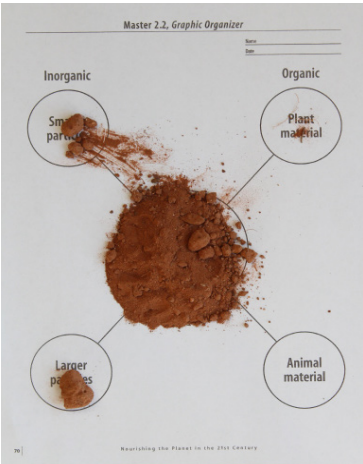
When going to the classroom, bring a copy of the curriculum and accompanying poster to gift to the teacher.

All NFLF resources are free.

PROCEDURE



Not all soil is the same. Even soil that looks similar can be very different. Soils contain different properties and different nutrients that plants use. This activity looks closely at differences you can see in the soil, including organic and inorganic material.



pieces, nonliving small pieces, living large pieces and living small pieces. Students can use a magnifying glass if one is available.

**Some students may have questions about living/ once living organisms. Materials from living or once living organisms can be called organic matter, like dead plant material, worms, and decomposing insects. Nonliving materials, such as clay, rocks, or sand are inorganic materials.*



4. Ask students to share what they found in their soil samples.
 - a. What was something they found interesting in the sample?
 - b. What are examples of pieces of organic matter that were found?
 - c. What are examples of inorganic matter that were found?

5. Wrap-up: Soils differ in their composition. The soils contain organic and inorganic materials. Visual inspection gives you an idea that soils are different but does not fully evaluate everything about soil. Some things that you can not see are what nutrients are in the soil.



OVERVIEW

Not all soil is the same. Even soil that looks similar can be very different. Soils contain different properties and different nutrients that plants use. This activity looks closely at differences you can see in the soil, including organic and inorganic material.

MAJOR CONCEPTS

- Soils differ in their composition
- The soils contain organic and inorganic materials
- Visual inspection gives you an idea that soils are different but does not fully evaluate everything about soil
- Some things that you can not see are what nutrients are in the soil

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.

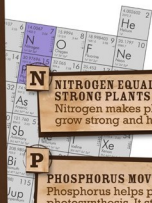
NUTRIENTS COME FROM THE SOIL THAT HELP THE PLANT GROW AND PRODUCE FOOD

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.



Name _____

Date _____

Inorganic

Organic

**Smaller
particles**

**Plant
material**

Soil Sample

**Larger
particles**

**Animal
material**





Exploration of Soil

Not all soil is the same. Even soil that looks similar can be very different. Soils contain different properties and different nutrients that plants use. This activity looks closely at differences you can see in the in the soil including organic and inorganic material.

Items needed

- Soil sample (this can be from a field, lawn or garden)
- Printout with the diagram for sorting
- Optional magnifying glass

Time: 10 minutes

1. Have the students divide into groups of 2-3. Give each group 1 print out.
2. Place one spoonful of soil in the center of the printout.
3. Ask the students to sort the soil into the 4 categories. Non-living large pieces, nonliving small pieces, living large pieces and living small pieces. Students can use a magnifying glass if one is available.
* Some students may have questions about living/once living organisms. Materials from living or once living organisms can be called organic matter, like dead plant material, worms, and decomposing insects. Nonliving materials, such as clay, rocks, or sand are inorganic materials.
4. Ask students to share what they found in their soil samples.
 - a. What was something they found interesting in the sample?
 - b. What are examples of pieces of organic matter that was found?
 - c. What are examples of inorganic matter that was found?
5. Wrap- up: Soils differ in their composition. The soils contain organic and inorganic materials. Visual inspection gives you an idea that soils are different but does not fully evaluate everything about soil. Some things that you can not see are what nutrients are in the soil.