



# SOIL YOUR UNDIES!

## Grade Level

K-12

## Length of Lesson

30 minutes

\*recurring over several months\*

## Objective

By the end of this lesson, students will understand how soil organisms impact soil health and the environment.

## Materials Needed

- White cotton underwear (pack of six recommended)
- Shovel
- Locations where you can dig and bury
- Underwear Diary (one copy for each student)

## Standards

### Common Core

CCSS.ELA-Literacy.RI.4.3; RI.5.2, RI.6.2

### NGSS

K-ESS2-2, K-ESS3-1, 2-LS4-1, 3-LS4-3, 4-ESS2-1, 5-LS2-1, MS-LS2-1, MS-LS2-5, HS-LS2-7

## Lesson Summary

This lesson is a fun, hands-on activity where students will be able to understand what makes a soil healthy by burying pairs of cotton underwear and watching them decompose over time.

## Suggested Sequence of Events:

1. Set Up: Purchase a pack of six white boy's or men's cotton underwear like [these](#).
2. Set Up: Find five locations (ideally with varying soil types) where you are able to dig and bury.
  - Extension idea for grades 7-12: have them help you brainstorm and decide where to bury.
3. Read a few books from [The Scoop on Soil: Recommended Reading](#) list to capture student interest.
4. Read through the IAITC Soil Ag Mag to learn about soil. Interactive online versions can be found on our website.
5. Pre-Activity Discussion: Learn about all the living things inside soil and how they interact with each other. Discover soil types in your area and discuss the correlation between presence of more microorganisms and overall soil health.
6. Preview the Activity: Inform students that in this activity, they will be burying five pairs of underwear in the soil and then digging them back up at various points through the school year. They will be examining the underwear before and after to see what impact the soil organisms had on the underwear while it was buried. Pass out an Underwear Diary to each student.
7. Make a Prediction: On the first page of their Underwear Diary, allow students to predict what might happen to the underwear buried in soil over time. Discuss their predictions and ask them to explain why their two predictions might be different.
8. Bury the Undies: Take a picture of the undies to document what they looked like on the day of burial. Have students sketch or describe the undies in the left columns of their Underwear Diary. Bury the undies in your five locations with as much or little student involvement as your students can handle.
9. Dig 'em up: Dig up the undies at different times through the year. (Example: Bury them week 1 of school. Dig up at/before Labor Day, Columbus Day, Veteran's Day, Thanksgiving, and Winter Break). Have students make observations in their packets.
10. Whole class discussion and reflection of activity.

# TEACHER RESOURCES

## Class Discussion:

- Results should show the more “healthy” a soil is (the more life—insects, microorganisms, etc.—a soil contains), the more damage will be done to the underwear. Organisms in the soil should ultimately “eat” all of the cotton of the underwear and leave just the elastic band, which is made of plastic and not biodegradable or consumable.
- If you dug up undies that were intact, but simply discolored: no presence of life in the soil.
- If you dug up undies that were any level of destroyed or decomposed: presence of life in the soil. More life = more damage to the undies.

## Extension Ideas:

- Discuss the importance of soil to the agricultural system and to life in general.
- Discuss how life in the soil can be both beneficial and harmful to plant matter.
- Discuss how human activity may have an impact on soil.
- Complete other [IAITC Soil Lessons](#).
- Take soil samples from your five areas where you buried the undies. Make further observations about color, texture, presence of organic matter and other living organisms. Maybe even look at the soil under a microscope!
- Utilize the Web Soil Survey at <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> to learn more about the soil in your area.
- Have students bury underwear at home and bring back in on a later day to compare.
- Invite a soil scientist into your classroom to teach students more about soil in your area.
- Go to [agintheclassroom.org](http://agintheclassroom.org) to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!

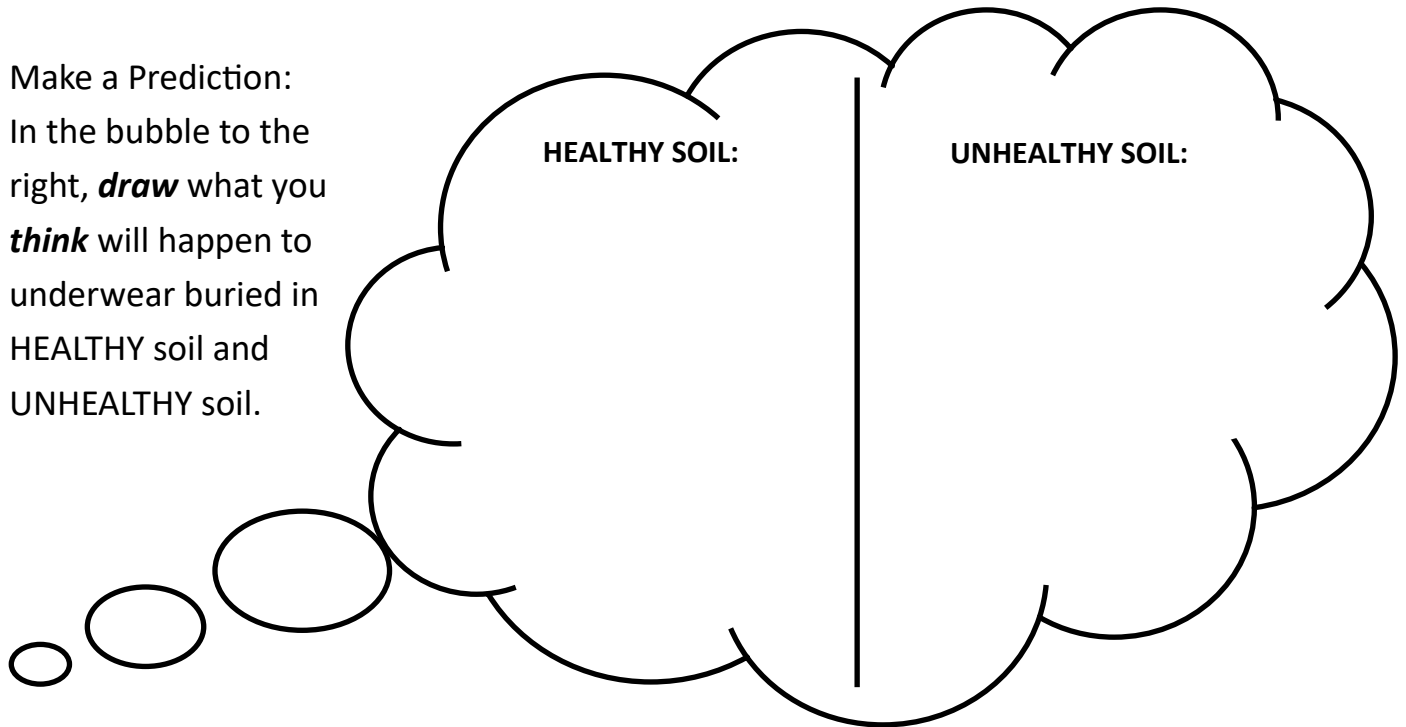


Science

# SOIL YOUR UNDIES!

## UNDERWEAR DIARY

Make a Prediction:  
In the bubble to the right, **draw** what you **think** will happen to underwear buried in HEALTHY soil and UNHEALTHY soil.



<b>Undies #1</b>	<b>Location Buried:</b>
------------------	-------------------------

Date Buried: \_\_\_\_\_

Date Dug Up: \_\_\_\_\_

Underwear Description

Underwear Description



Science

# SOIL YOUR UNDIES!

## UNDERWEAR DIARY

**Undies #2**

**Location Buried:**

Date Buried: \_\_\_\_\_

Date Dug Up: \_\_\_\_\_

Underwear Description

Underwear Description

**Undies #3**

**Location Buried:**

Date Buried: \_\_\_\_\_

Date Dug Up: \_\_\_\_\_

Underwear Description

Underwear Description



Science

# SOIL YOUR UNDIES!

## UNDERWEAR DIARY

**Undies #4**

**Location Buried:**

Date Buried: \_\_\_\_\_

Date Dug Up: \_\_\_\_\_

Underwear Description

Underwear Description

**Undies #5**

**Location Buried:**

Date Buried: \_\_\_\_\_

Date Dug Up: \_\_\_\_\_

Underwear Description

Underwear Description



Science

# SOIL YOUR UNDIES!

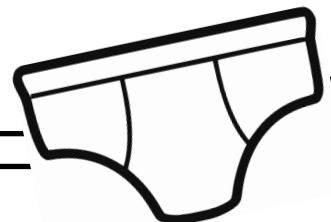
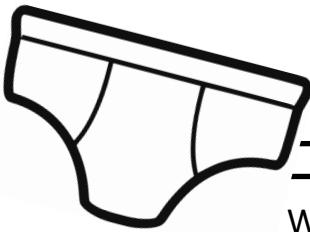
## UNDERWEAR DIARY

Which pair of undies changed **the most?**

Why?

Which pair of undies changed **the least?**

Why?



Were your predictions correct? Why or why not?

What does it mean for a soil to be "healthy"?