

Title of the Lesson: Let's Get Dirty: Exploring Local Soil Samples

Grade Level: Third Grade, adaptable for First Grade

Length of Lesson: 6 sessions, approximately 30 minutes- 1 hour each session

Overview of the Lesson:

In this multi-day lesson, students explore local soil samples and present what they have learned by taking photographs and writing informational comments using VoiceThread.

Essential Learning Outcomes Questions:

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

- Identify the basic properties and components of soil.
- Use a digital camera to capture observations.
- Use the VoiceThread online program to record informational writing about their learning.
- Respond to their peers' writing and questions on VoiceThread.

NC Common Core Standards Being Addressed:

Third Grade:

Science 3.L.2.4 Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the ability of soil to support the growth and survival of many plants.

Writing 3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

Writing 3.6 With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.

Technology 3.TT.1.3 Use technology tools to present data and information (multimedia, audio and visual recording, online collaboration tools, etc.).

First Grade:

Science 1.E.2.2 Compare the properties of soil samples from different places relating their capacity to retain water, nourish and support the growth of certain plants.

Writing 1.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

Technology 1.TT.1.3 Use technology tools to present data and information (multimedia, audio and visual recording, online collaboration tools, etc.).

Materials Needed:

- Outdoor area where local soil can be collected
- Soil sampling tubes (1 for every 3-4 students)
- Digital cameras (1 for every 3-4 students)
- Computers
- Microphones
- VoiceThread account (You will need to create a free account online.)

How the Lesson Will Flow:

Use this lesson as an application assessment after having taught students the basic properties (texture and capacity to hold water) and components of soil (humus, sand, clay).

Session 1- 30 minutes

Introduce the project by explaining to students that they will be collecting soil samples outside, recording observations, and taking photographs of their samples. The photographs will then be uploaded to VoiceThread and students will show what they have learned about the properties and components of soil by posting informational comments about the photographs.

During the first session, introduce the basics of using a digital camera by modeling the procedure with a camera. Teach students how to turn the camera on and off. Teach students how to place the object they are photographing in the center of the viewfinder. Also, show students how to toggle between viewing photographs and taking photographs. Be sure to discuss procedures of keeping the camera safe. This should include holding the camera securely and placing it in the carrying case when not in use.

Place students in small groups (3 or 4 students each would be appropriate). Give each group a digital camera and allow them to practice taking photographs of chosen objects around the classroom.

Note: To modify this lesson for first grade, it may be best to have the teacher be the only one taking photographs.

Session 2- 1 hour

During this session, students will go outside to take soil samples and make observations.

Pass out a copy of the following discussion questions to each student. Explain that students should write down their answers to these questions while observing their soil samples.

What colors do you see?

What does it feel like?

Is it wet or dry? How do you know?

What components do you see?

Is there anything living in your soil sample?

Do you see any decaying matter?

Try rolling a small amount of your sample into a ball. Does the soil stick together?

Try smearing your sample on a piece of white paper. Does it leave a streak?

What type of soil(s) do you think you have collected?

Where else might you find a similar soil sample?

Where might you find a very different soil sample?

Divide the students into small groups (3 or 4 students per group would be appropriate).

Give one digital camera to each group.

Lead the class to an appropriate area outside where soil samples can be taken. Model how to use a soil sampling tube to collect a soil sample. Give one soil sampling tube to each small group.

Remind students that they should be discussing the given questions while looking at their soil samples. Also, students should remember to take photographs of their soil samples and of anything that would capture their observations for the given discussion questions.

Students work in small groups to collect soil samples, answer discussion questions and take photographs.

Before Session 3

Collect all the digital cameras and upload the pictures to a single VoiceThread account.

Session 3- 30 minutes

In this session, teach students how to use the VoiceThread program. First, show students how to get to the website and login. Show students how to scroll through the photographs they have taken to choose ones they would like to write about. Model how to make a comment on a particular photograph. These comments may either be recorded or typed. Also, teach the students how to draw on the photograph to label specific parts to correspond to their comment. You may want to use the following tutorial that is provided on VoiceThread: <https://voicethread.com/about/features/doodling/>.

Note: To modify this lesson for first grade, it may be best to record the comments as a whole group or with the help of several parent volunteers. It may be possible for the students to complete their recordings independently if there has been sufficient modeling beforehand.

Session 4- 45 minutes

In this session, explain to students what is expected for their writing and then have them write their informational comments that will be posted with the photographs they took.

Show students the provided writing rubric and discuss the necessary components for their writing. Using their answers to the soil sample observation questions as a guide, students write informational comments to explain the properties and components of the soil in the photographs they have taken. They should write comments for at least two photographs.

Additionally, they should come up with at least one question they are wondering about what they observed.

Session 5- 30 minutes

This session will actually be completed individually by students using a single classroom computer at available times throughout the day. This is necessary because only one person can log on to the account at a time.

In this session, students record the informational writing they have completed to explain what they have learned about the properties and components of soil. These comments may be recorded or typed.

Session 6- 30 minutes

This session will be completed individually by students using a single classroom computer at available times throughout the day.

In this session, students should listen to or read their classmates' comments and questions. They should choose at least one comment or question to respond to. This response could be a compliment about their peer's writing or learning, or it could be a possible answer to a peer's question. After they have thought about their response, it should be recorded or typed as an additional comment on that photograph.

Assessment:

Students can be informally assessed by listening to their discussions while they are taking soil samples or by reading their observational notes.

Formal assessment can be taken by using the attached writing rubric.

Sources for the Lesson:

Some of the discussion questions and observational activities have been adapted from the *Exploring Soil* Schoolyard Science program led by Raleigh Parks and Recreation.

I decided to have students photograph these activities and present their learning by using VoiceThread.

The Writing Rubric is adapted from the Wake County Public Schools' *3-5 Analytic Writing Rubric*.

Informational Writing Rubric- *Let's Get Dirty: Exploring Local Soil Samples*

	4 Consistently meets and exceeds expectation	3 Meets expectation most of the time	2 Meets expectation some of the time	1 Meets expectation only in a few places
Focus <ul style="list-style-type: none"> • The comments are focused on explaining the properties and components of soil. • The information that is included is important to the topic. 				
Organization <ul style="list-style-type: none"> • The order of the sentences makes the information understandable to the audience. • The comments make sense with what is shown in the photograph. 				
Support/Elaboration <ul style="list-style-type: none"> • There are enough details and explanation for the audience to visualize and understand the information. • At least two comments and one question have been written. 				
Style <ul style="list-style-type: none"> • The writing includes specific content vocabulary. • The writing includes effective words such as powerful verbs, specific words, adjectives and adverbs. • The sentences make sense. 				
Conventions <ul style="list-style-type: none"> • Correct punctuation is used. • Correct capitalization is used. • Correct spelling is used. 				