



Soil Scientist Presentation in the Classroom Grades 9-12

Thank you for volunteering to present materials about soil science to high school students. You may be the first soil scientist these students have seen. This should be a fun experience for you, and you may indeed influence the career(s) of future soil scientist(s).

Work with the teacher beforehand to ensure both your and the teacher's expectations are understood. The teacher likely can give you guidance on students' background that will help you prepare. Ask the teacher how your presentation will fit the lesson plan for the day. Build on the understanding the students already have of soil science? Plan activities that involve students. Always leave time for questions and answers.

Here are some sample activities to get you started. Choose those you feel comfortable doing. You will only have time for a couple of these activities.

Introductory Resources: While designed for the 5th grade level have been developed in a Soils Overview Unit (and include many of the links below) at:

<http://www.soils4teachers.org/files/s4t/lessons/soils-overview-unit-sep17.pdf>

Start: Give a little of your background. How did you become interested in soils? Why do soils fascinate you? What is your training? What is your typical day as a soil scientist?

What is soil: Have students orally or in writing define soil. Have students share their responses. Talk about the difference between soil and dirt. You may follow this with a short PowerPoint or video presentation such as <http://extension.illinois.edu/soil/concepts/concepts.ppt>; <https://vimeo.com/53618201>.

Texture by feel: Bring several samples of soil to the classroom. Demonstrate texture by feel. Have the students practice. Discuss with students the importance of the soil sand, silt, and clay fractions.

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/?cid=nrcs142p2_054311

Life in the soil: Have the teacher set up a Berlese Funnel the day before your visit. Look with the students through a microscope to see the living organisms (the teacher may have a projection microscope where the image can be shown to all). <http://www.carolina.com/teacher-resources/Interactive/constructing-berlese-funnels-study-invertebrate-density-biodiversity/tr19101.tr>.
Movies of soil biology: <http://agron-www.agron.iastate.edu/~loynachan/mov/>.

Soil has charge: Show students that soil can be a filter by using Kool-Aid. Discuss charge in soil and its origin. <http://www.doctordirt.org/teachingresources/soilfilter>

Field trip: Coordinate with the teacher if it is possible to take the students to a soils pit. In the field, you can talk about soil formation, soil texture, soil color, soil horizons, etc. Can a shallow pit be dug near the classroom? Alternatively, walk to a local garden and talk about soil/plant relationships.

Web Soil Survey: Walk the students through the [Web Soil Survey](#). Discuss terms as they come up. Find the soil type upon which the school is located, the city water tower, etc.

The carbon cycle: Go to the board and discuss the carbon cycle (or another nutrient cycle) asking students for input: ~~is the sun important? What does a plant do? What food do we eat (directly or indirectly) that doesn't depend on this cycle? What does soil contribute to the cycle (water, nutrients, decomposition)?~~ <http://soilcarboncenter.k-state.edu/carbcycle.html>; http://serc.carleton.edu/earthlabs/carbon/soil_carbon_cyc.html

Careers: End your presentation by talking about careers in soil science and perhaps about education needed for these careers. <https://soils.org/careers>

General Resources:

www.soils4teachers.org – SSSA K-12 Outreach site with teacher resources

www.soils.org/discover-soils - SSSA Public Outreach pages

www.soils.org/iys/ - including monthly soils themes, overviews, lessons, activities, and videos!

www.nrcs.usda.gov/wps/portal/nrcs/main/soils/edu/ - NRCS portal