



# SSSA K-12 Committee Accomplishments

## OVERVIEW

Increasing interest and awareness of soil science as a scientific pursuit and career choice is fundamental to the future of soil science. And SSSA believes K-12 teachers and students are vitally important to our future. Therefore, the SSSA K-12 committee plays a valuable role in working to integrate more information on soil science into biology, chemistry, physics, and earth science areas taught at multiple grade levels.



During the eleven years the committee has been active, they have achieved an exceptional amount. In July 2008, Dig It! The Secrets of Soil exhibition opened at the Smithsonian Institution's National Museum of Natural History (of which SSSA was a Founding Sponsor). In preparation, the committee launched in 2006 and a group of SSSA members got to work. Read on to learn more.

Activities and accomplishments center around five areas:

- **Publications** – publishing books relevant to the K-12 audience
- **Curriculum Development** – developing new curricula for K-12 instruction, connected to NGSS standards
- **Website Development** – enhancing the K-12 website resources
- **Disseminating Soils Information** – across the spectrum of K-12 audiences
- **Collaboration** – maximizing outreach through collaborations with other groups



## Accomplishments

### PUBLICATIONS

#### *Soil! Get the Inside Scoop*

The first of the committee's publications was a children's book. Content was developed by committee members and designed with an illustrator and children's book ghost writer. The book was published in time for the opening of the exhibition. The book explores how soil is part of our life – the food we eat, the air we breathe, the water we drink, the houses we live in, and more. More than 7000 have been sold and the book is in its fourth printing.



#### *Soil! Get the Inside Scoop Teachers Guide*

An online teachers guide to *Soil, Get the Inside Scoop* was developed for each chapter of the book—with accompanying PowerPoints, definitions, activities, quiz questions, and more. The online guide is available at [www.soils4teachers.org/lessons-and-activities/teachers-guide](http://www.soils4teachers.org/lessons-and-activities/teachers-guide)

#### *Know Soil, Know Life*

This 200-page book is targeted at high-school students and college students in introductory courses and written by committee members. It begins with a chapter that challenges readers to view soil not as inert "dirt", but as living material that carries out critical functions for the environment and for people.

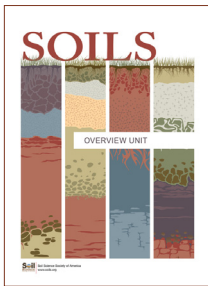


*Know Soil Know Life* then takes readers through a traditional sequence of soil science topics including physical properties, soil biology, soil chemistry/fertility/nutrient management, soil classification, conservation, and soils and biomes. It then draws a direct line between people and soils in history and modern life. It wraps-up with a chapter on career opportunities in soils with profiles of soil scientists. Over 3000 have been sold.

The books are available at: [www.societystore.org](http://www.societystore.org)

## CURRICULUM DEVELOPMENT/LESSONS

### Overview Unit



A Soils Overview unit has been developed for grades 6-8, providing students with a basic understanding of the fundamentals of soil science through the integration of disciplinary core ideas, science and engineering practices, and crosscutting concepts. The lessons capitalize on the wealth of resources found on the websites. The unit includes six parts – key to the field of soil science. Each part may be used individually or combined to create a unit.

### Lessons



Peer-reviewed K-12 activities/lessons for teachers focus on one or more learning objectives from the national standards and use soil as a central component to teach to that standard. Lessons have a standard format and are peer-reviewed prior to posting on the website. The peer-review process is coordinated by Natural Sciences Education journal editorial committee and includes K-12 teachers as reviewers. All

members are encouraged to submit lessons!

## WEBSITES

### [www.soils4teachers.org](http://www.soils4teachers.org)

Our teacher's website is rich in informational and educational resources. The site features sections on soil basics, soils by subject (formation, biology, chemistry, fertility, mineralogy, physics, and forensics), around the world, land and people, lessons/activities, and additional resources. The lessons/activities section includes a matrix of seven subject-matter areas categorized by grades K-4, 5-8, and 9-12. Also on the site is the Ask a Soil Scientist feature, soils glossary, links to the society store, and classroom resources such as the soils ruler, stickers, and more!

### [www.soils4kids.org](http://www.soils4kids.org)

Our kid's website has some of the same features as the teachers site and also includes more activities specific to younger grades – in a colorful and fun format. Sections include “all about soil,” “fund with soil (activities),” soil experiments, soil games, career exploration, and “soil in your community.” In addition, sections are broken-out by grades K-4, 5-8, and 9-12.



## DISSEMINATING SOILS INFORMATION

### National Science Teachers Association (NSTA)

With limited resources and large goals, one of the best opportunities for outreach and dissemination is through K-12 teachers. Since 2008, SSSA has exhibited at the NSTA Annual Meeting, a gathering of 15,000+ teachers. Activities include:

- Showcasing resources at a booth,
- Conducting workshops on activities for the classroom,
- Participating in Share-a-thons, and
- Demonstrating soil painting, making mini soil monoliths, redox experiments, and others.



### USA Science and Engineering Festival

SSSA participates in the USA Science and Engineering Festival, held bi-annually in Washington, DC (attended by over 200,000). To stand out, the committee has developed a “Soils Spinning Wheel” and kids spin the

wheel and are asked a question related to the subject matter landed upon. Subjects and questions were developed from information in the “Scoop” book. An “I Heart Soil” ruler is the prize. We have distributed over 75,000 rulers at festivals and exhibit booths (including NSTA) and to teachers as the result of various requests.



### Ask a Soil Scientist

The “Ask a Soil Scientist” program is a place for students and teachers to ask questions about soils and soil science and get answers! In addition, teachers can request that a soil scientist to visit their classroom to talk about a specific topic. Approximately 135 members have volunteered with this program.



## Careers in Soil Science Profiles

To spread the word about the varied careers in soil science, the committee developed an online Career Profiles format for members to tell their career story and have them upload to the SSSA websites. All members are encouraged to provide a profile (and photos)!

### View our Career Profiles:

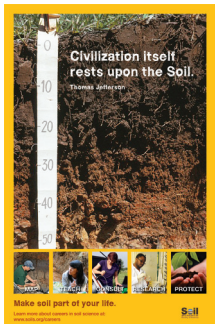
[www.soils4teachers.org/career-tools/career-profiles](http://www.soils4teachers.org/career-tools/career-profiles)

### Submit a Career Profile:

[www.careerplacement.org/account/profile/career](http://www.careerplacement.org/account/profile/career)

## COLLABORATIONS

### American Geosciences Institute (AGI)



AGI hosts Earth Science Week in cooperation with sponsors as a service to the geoscience community. SSSA is a member of AGI. Committee members develop a soil science activity for the annual calendar and SSSA contributes to the Earth Science Week kits which are distributed to 16,000+ teachers. Earth Science Week is held annually in October with each year having a unique theme. Links to the activities are available at [www.soils4teachers.org/esw](http://www.soils4teachers.org/esw)

Recent themes and activities include:

2016 – Our Shared Geoheritage – Water movement and soil compaction

2015 – Visualizing Earth Systems – Measuring soil moisture

2014 – Earth's Interconnected Systems – Measuring transformations in the nitrogen cycle

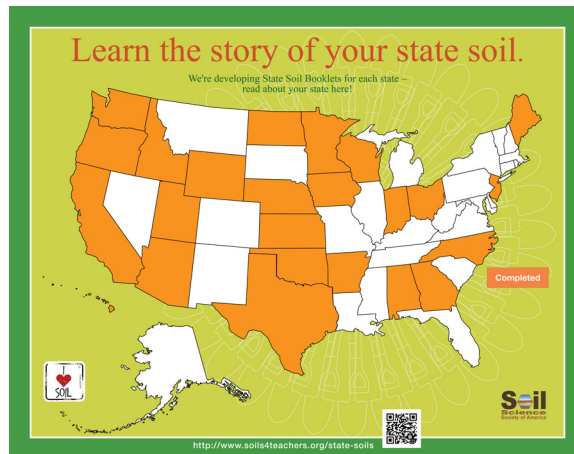
2013 – Mapping Our World – Mapping your soil with the Web Soil Survey

### National Association of Conservation Districts (NACD)

Annually, NACD sponsors a national stewardship week which local conservation districts support through outreach to their local communities. In 2009 and 2014, committee members served as scientific reviewers for materials focusing on soils.

## CURRENT AND FUTURE ACTIVITIES OF THE SSSA K-12 COMMITTEE

- State Soil booklets, 4-8 pages about the soils of each state – 23 states have been completed!  
**View them at:** [www.soils4teachers.org/state-soils](http://www.soils4teachers.org/state-soils)
- Content is being uploaded to a peer-reviewed soils multimedia gallery for teachers of all grade levels to access (at no charge).
- Development of a teacher's guide for *Know Soil, Know Life*.
- Development of webinars on introductory soils topics.



## ADDITIONAL RESOURCES!



2015

International  
Year of Soils

International Year of Soils homepage:  
[soils.org/iys](http://soils.org/iys)

International Year of Soils videos:  
[www.soils.org/iys/monthly-videos](http://www.soils.org/iys/monthly-videos)

International Year of Soils activities:  
[www.soils.org/iys/12-month-resources/](http://www.soils.org/iys/12-month-resources/)

### I ♥ Soil Items

I "heart" soil items are popular with kids, teachers, and anyone else who loves soil! Stickers in fifteen different languages and clothing items are available.

**Visit:** [www.soils.org/iys/stickers](http://www.soils.org/iys/stickers)



## THE COMMITTEE

The activities of the SSSA K-12 Committee could only have happened through the commitment of time, energy, and enthusiasm of our dedicated committee members!

### Current Chair

Missy Holzer  
(2017-2018)

### Former Chairs

J. Adewale Adewunmi  
(2015-2016)

Clay A. Robinson  
(2012-2014)

David L. Lindbo  
(2010-2011)

Thomas E. Loynachan  
(2008-2009)

Monday O. Mbila  
(2005-2007)

### Staff Liaisons

Susan Chapman  
Emily Fuger

### Current Members\*

J. Adewale Adewunmi  
Nicholas J. Balster

Dennis L. Coker

Cara Farr

Mike Hendrix

Margaret Holzer

David L. Lindbo

Thomas E. Loynachan

Rebecca Lybrand

Bradley W. Miller

Jarrold O. Miller

Bianca Nadine Moebius-Clune

Ellen M. Phillips

Clay A. Robinson

Susan Schultz

Melanie Szulczewski

Wendy A. Weitkamp

*\*(as of June 2017)*



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