



SSSA K-12 Committee Accomplishments

History

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 SSSA Board of Directors approved a K-12 Outreach Committee in 2006 and a group of SSSA members got to work. The charge to the committee was



to increase interest and awareness of soil science as a scientific pursuit and career choice, especially among K-12 teachers and their students and work to integrate more information on soil science into biology, chemistry, physics, and earth science areas taught at multiple grade levels.

Activity Centers

Activities center around five areas:

- **Assessment and Standards** – connecting soil to state and national standards
- **Curriculum Development** – developing new curricula for K-12 instruction
- **Website Development** – enhancing the K-12 website resources
- **Books** – publish books relevant to the K-12 audience
- **Develop and Disseminate Soils Information** – for all audiences

Accomplishments

During the six years the SSSA K-12 Committee has been active, they have achieved an exceptional amount. Read on to learn more.



PUBLICATIONS AND LESSON PLANS

Soil! Get the Inside Scoop

The K-12 committee brought forth the idea of developing a children's book on soil, provided the content, staff worked with an illustrator and children's book ghost writer, and published the book in time for the opening of the exhibition (a production timeline of less than 12 months).



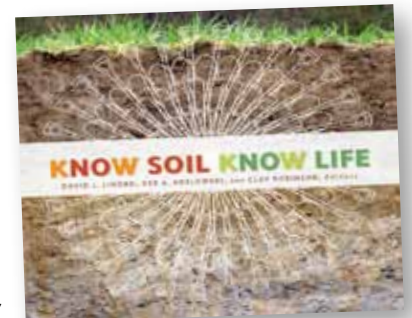
The book explores how soil is part of our life – the food we eat, the air we breathe, the water we drink, the houses we live in, and more. More than 3000 have been sold and the book is in its second printing.

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

Know Soil, Know Life

This 200-page book is targeted at high-school students and written by committee members. Chapters include Physical Properties of Soil and Soil Formation, Soil Ecosystems/Biology, Chemical Properties of Soil and Soil Fertility, Classification/Soil Mapping/Interpretation, Environmental Science/Soil Conservation/Land Use Management, Soils and Biomes, Soil in History and Modern Life, and Career Opportunities.



Lesson Plans

Peer-reviewed K-12 soil activity/lesson plans for teachers. Each lesson plan will focus on one or more learning



objectives from the National standards and use soil as a central component to teach to that standard. Lesson plans have a standard format and will be peer-reviewed prior to posting on the website. The peer-review process will be coordinated by *Natural Sciences Education* journal editorial committee and will include K-12 teachers as reviewers.

PARTNERSHIPS

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, the official theme was *Dig It! The Secrets of Soil*, based on the exhibition the Smithsonian. Committee members served as scientific reviewers for all of the materials which consisted of booklets for various grade levels, a unique poster of each state and territory soil profile, bookmark, placemat, educator's guide and much more. The 2014 theme will focus on soil.



National Science Teachers Association (NSTA)

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



include: an exhibit booth demonstrating various activities, workshops on activities for the classroom, participating in Share-a-thons and demonstrations include soil painting, making mini soil monoliths, redox experiments, and others.

American Geological Institute (AGI)

AGI hosts Earth Science Week in cooperation with sponsors as a service to the geoscience community. As an AGI member we develop a soil science activity for the annual calendar and contribute 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.



Recent kits have included:

- 2013 Theme – *Mapping Our World* - Calendar Activity – Mapping Your Soil, Kit – Soil Orders Poster
- 2012 Theme – *Careers in the GeoSciences* - Calendar Activity – Finding Slope (with supplemental worksheet), Kit – Careers in Soil Science Poster
- 2011 Theme – *Our Ever Changing Earth* - Calendar Activity – Soil Color and Redox Chemistry, Kit – “All American Soils” poster – courtesy of NACD
- 2010 Theme – *Exploring Energy* – Calendar Activity – Soil, Plants, and the Energy Cycle (with supplemental worksheet), Kit – Biofuels: An Overview fact sheet

Dig It! Exhibition Activities

Two Train-the Trainer Workshops were conducted at the Smithsonian Exhibition – with over 60 teachers in the Washington DC area participating, January and June 2009, with Project Learning Tree members as the facilitators of the workshop.

The exhibit has also traveled to the Durham Museum, Omaha, NE, Northwest Museum of Arts and Culture, Spokane, WA and will be heading to the Bell Museum, St. Paul, MN. Staff and Members have participated in educational events (such as “Let’s Get Dirty” day) and SSSA has provided educational materials, promotional items and books for giveaways and raffles.



OUTREACH ACTIVITIES

Websites

Our teachers website features soils topic areas, lessons/articles, resources, definitions, links, and a matrix of seven subject-matter areas categorized by grades K-4, 5-8, 9-12.

Our kids website features areas including:

- all about soil,
- fun with soil (activities)
- soil experiments
- soil games
- career exploration
- soil in your community



www.soils4teachers.org



www.Soils4Kids.org

USA Science and Engineering Festival

SSSA participated in the USA Science and Engineering Festival (October 2010 and April 2012, Washington, DC) with the committee and developed a Soil Spinning Wheel to attract people. Folks would spin the wheel and be asked a question related to the subject matter landed upon. Subjects and questions were developed from information in the "Scoop" book. A soil ruler (I ♥ Soil) was given as a prize. We have distributed over 15,000 rulers at both the festivals and to teachers as the result of various requests.



Over 250,000 people attended the 2012 festival.

Member Outreach Activities

- **New**—Developed an online Career Profiles format for members to tell their career story and have them upload to the SSSA websites.
- **Ask a Soil Scientist program online** – members volunteer, select regions and topic areas – answer questions from general public, students, and teachers. They may also volunteer to speak in classrooms. 135 Members have registered to date.
- Multiple articles have appeared in *CSA News* on the activities of the committee.
- A group of committee members participated in a just concluded teaching standards review at the national level, via the SSSA Science Policy Office.

Annual Meeting Activities

- **2010 Annual Meetings**—Two presentations were made in Long Beach - an overview of the K12 committee activities were presented in an Education Division session and a second was presented in a session on New Media. Two posters were also displayed.
- **2011 Annual Meetings**—Co-sponsored a K-12 Activities Symposium—Train the Trainer: K-12 Lessons for Soils, Crops and Agronomy
- **2012 & 2013 Annual Meetings**—Hosted a booth featuring activities developed by the K-12 Committee for Teachers and Students.



Additional Teacher Materials

Soils Overview - for easy teacher reference on the basics of soil.



FUTURE ACTIVITIES UNDER CONSIDERATION

- State Soil booklets, 4-8 pages about the soils of each state (8 x 11.5)
- Peer-reviewed soils digital photo library for teachers (all levels)
- Partner with NACD to develop new K-6 soils materials, update Dig It! materials
- Develop Teacher's guide for *Know Soil, Know Life*



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

Clay A. Robinson (2012-2013)

Former Chairs

David L. Lindbo (2010-2011)
Thomas E. Loynachan (2008-2009)
Monday O. Mbila (2005-2007)

Staff Liaison

Susan Chapman
Emily Fuger

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Melanie Szulczewski*
Kenneth Cornelius J. Van Rees
Raymond R. Weil
Wendy A. Weitkamp*
Scott P. Werts
Lindell Williams

**Current Committee Members*

