Dig into the GLOBE Soil Moisture Campaign

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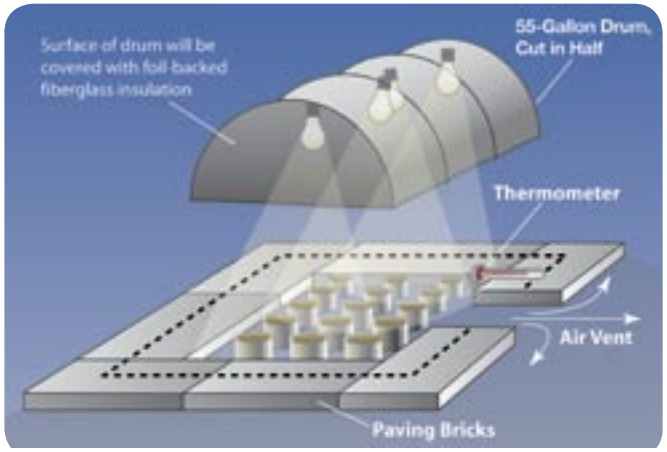
Soil moisture is an important aspect of natural science: it is critical to plants and can affect local weather patterns by reducing the soil temperature. Scientists are interested in learning more about the role soil moisture plays in interactions between the Earth's surface, the atmosphere, the environment, and the global water cycle.

Students in Nogales, Mexico learn about soil moisture; light bulb oven is shown. (Photo courtesy of M. Kate Adams.)

New computer models and satellites currently are being built to study and explore these relationships.

The Global Learning and Observation to Benefit the Environment (GLOBE) Soil Moisture Campaign is a project that helps children understand the importance of soil moisture as a natural resource. GLOBE is a worldwide hands-on, primary and secondary school-based education and science program. Students and teachers from 12,000 schools in more than 104 countries are working with research scientists to learn more about our planet. GLOBE students take scientifically useful measurements, report their data over the Internet, study the environment using images created with their data, and work with GLOBE scientists.

The GLOBE Soil Moisture Campaign (SMC) teaches students about soil by involving them in hands-on, indoor-outdoor activities, and by having students apply their observations to real-world scientific questions and data sets. Unlike many other GLOBE projects, GLOBE training is not required – anyone can participate in the SMC. All that is needed is a small amount of low-budget, low-tech equipment, and some planning. Teachers and students are asked to collect samples twice annually within nine-day campaign time windows, which are tied to Earth Science Week in October and the week surrounding Earth Day (Apr. 17-25, 2004).



Schematic of the GLOBE SMC light-bulb oven.

The primary hurdle teachers experience when planning to participate in the SMC is identifying an easy, effective way to dry soil samples. In response to this challenge, GLOBE SMC researchers designed and tested a simple, inexpensive oven made from easy-to-find materials. Test results show that this light-bulb oven consistently dries soil samples at the same quality level as a traditional laboratory oven. The oven is made from a 55-gallon drum cut in half lengthwise, powered by four 100-watt light bulbs, and placed on a bed of concrete paving bricks (see diagram). The cost of the materials is about $75, a $250 savings compared with a low-end traditional laboratory oven. So far, the ovens have been successfully used in Arizona, Alabama, and Sonora, Mexico.

For more information about the GLOBE Soil Moisture Campaign, visit www.hwr.arizona.edu/globe/sci/SM/SMC or for more information and a free Soil Moisture Campaign Start-up Kit, contact Martha Whitaker at mplw@hwr.arizona.edu. For more information about GLOBE, visit www.globe.gov.