

## **Monitoring Soil Science Project**

This science education project seeks to establish innovative student-scientist partnerships through ongoing soil-based research.

Students in Western Australia will be trained in scientific methodologies, including sampling strategies, which they will use to collect a series of biological, chemical and physical soil science data. They will then upload their results onto a shared online database. The project will introduce students to the concept of soil science, and the importance of soils in the environment and to the climate change debate.

The project has the support of Professor Lyn Abbott of UWA's School of Earth and Environment in the Faculty of Natural and Agricultural Sciences. Professor Abbott is interested in the role of soil organisms in important soil processes, particularly in relation to soil fertility and soil management. Soil organisms are important to soil health, and the soil is both their living environment and their food source. Monitoring their populations may help to gauge the influence of a changing climate on soil, particularly the fate of the carbon reservoir within the soil.

### **In this trial**

During this trial period, six schools will collect a minimum of two data sets each. With the help of a soil science expert, two accessible areas of land will be identified at each school. These 4x4 m plots will become the school's permanent study site. The soil science expert will help characterise the site, which will include an explanation of the soil type and collection of soil samples for analysis at a soil laboratory. The sites will be identifiable by GPS reference.

Each school will monitor their soil research plots for:

- The abundance and ratio of mites and springtails
- Soil pH and electrical conductivity (soil salinity)
- Soil bulk density, soil moisture content and organic matter content

There will be an initial discussion among the students about how and where the soil samples are taken. This will depend on the characteristics of the site and is an important first step in the process.

Students will upload their results onto the *Monitoring Soil Science* project website, which will be available to students and scientists across the world, helping to raise the awareness of soil science.

Students will be encouraged to pursue their own investigations alongside the project. To promote this, Professor Abbott has offered to review student project reports, and hopes to reward the most promising and interesting submission by taking two students and two teachers to the 19<sup>th</sup> World Congress of Soil Science which is happening in Brisbane in August 2010, if funding is available.

**Desired project outcomes, students will be able to:**

- Participate in “real”, meaningful science activities.
- Follow scientific protocols to collect valid and reliable data.
- Distinguish between the physical, chemical and biological aspects of the soil ecosystem
- Interpret patterns and trends in these data, and compare their results with students at other schools who will have different soil types and land management practices
- Develop their own soil science project

Specifically it will support Years 8, 9 & 10 Syllabus content:

- Investigating: The planning, conducting, processing and evaluating of data
- Earth & Beyond: The sustainability of life, and wise resource use
- Life & Living: The interdependence of living things