

Nature's Gold

(recommended grades 3-4 or equivalent)

This program supports the practice of observation and analytical skills through the exploration of different kinds of soils. By getting their hands dirty, students explore the components of soil that give them their unique characteristics, and experiment with filtration properties of soils. Students discuss the human reliance on good soil and the importance of soil to overall ecosystem health. Students compare plant communities in habitats with different kinds of soils, and predict boundary areas for areas with different kinds of soils based on the plant life there. (This curriculum uses modified activities from the Creek Freaks Curriculum by the Izaak Walton League. The full supporting curriculum is freely available in the Library section of SaveOurStreams.net.)

SOLs addressed in this curriculum are:

Science 3.1, 3.6, 3.7, 3.9, 3.10

Math 3.3, 3.7

Eng 3.1, 3.4

Activity 1, Soil texture: Students will compare properties of different soil components. Using pictures of habitats paired with their unknown soils, students will predict which components are present in the unknown soil types based on their texture.

Activity 2, Soil percolation: Students explore the filtering properties of soils through demos and experiments.

Activity 3, Comparing habitats: Students compare the plant communities and soil in different habitats. They predict soil-type boundaries based on observing plant communities.

Eww, What's That?

(recommended grades 5-6 or equivalent)

This program develops knowledge and skills related to human-environment interactions, biodiversity, observation, classification, data collection, data analysis, and teamwork.

SOLs addressed in this curriculum are:

(correlations pending)

- Activity 1, Tree Diversity: We use a demo to emphasize the importance of being able to identify organisms, then discuss how knowing the identity of the organisms around us can tell us about the environment those organisms live in. Students then explore characteristics that make organisms similar and different from each other, and learn how to read a dichotomous key. They use a dichotomous key along a trail to identify trees along a short trail that spans different habitats. They hypothesize what their initial findings might indicate about the environments along the trail. (Our key is an adaptation

of the Common Native Trees of Virginia by the Virginia Department of Forestry. For follow-up activities in the school yard, the entire key can be downloaded free from the VDOF website or ordered as a book for a minimal fee.)

- Activity 2, Biological Sampling in the River: We use a demo to discuss water pollution and the sometimes unseen effects of upstream activities. Students discuss the utility of using the presence of organisms to identify unseen environmental characteristics. We then introduce the students to the importance of using established protocols to compare data and show students biological sampling methods. As teams, students collect their own sample of animals in the river and set about identifying them. They use a data collection sheet to compile their data and that of other groups. As a class, they interpret their data. (This activity is adapted from the Creek Freaks Curriculum by the Izaak Walton League. The full supporting curriculum is freely available in the Library section of SaveOurStreams.net)

In the event of poor weather, the entire program is adapted to be done indoors and is still a hands-on program.

Prep: Prior to their field investigation, we recommend introducing your students to what a watershed is. If you're low on hands-on activities, a brief and engaging introduction of watersheds can be found in the Creek Freaks Curriculum. We recommend *Watershed Hands*, *Watershed Address*, and *How to Build a Model Watershed*.

Follow-up Reinforcement Ideas:

- **Tree Diversity:** Consider investigating Project Budburst, a citizen science project that helps scientists track the effects of changing climates by using tree phenology. The database has many species of trees you can choose to follow. Many schoolyards are planted with ornamental or non-native species, so if you have trouble identifying them, ask your groundskeepers for help.
- **Biological Water Sampling:** Take your data collection sheets back to the classroom and play with the numbers. Create different kinds of graphs and discuss statistics using team versus aggregated data. Compare your class data to national data available at saveourstreams.net.

Watershed Wisdom

(recommended grades 5-6 or equivalent)

This program develops knowledge and skills related to human-environment interactions, habitat assessment, critical thinking, observation, biodiversity, classification, data collection, data analysis, and teamwork.

SOLs addressed in this curriculum are:
(correlations pending)

- Activity 1, Watershed Hike: We use a demo to tell a story about the relationships between topography, water, and pollution. We then go on a short hike where, as teams,

students assess the features of a watershed, and the movement of water and material through the land.

- Activity 2. Biological Sampling in the River: We use a demo to discuss water pollution and the sometimes unseen effects of upstream activities. Students discuss the utility of using the presence of organisms to identify unseen environmental characteristics. We then introduce the students to the importance of using established protocols to compare data and show students biological sampling methods. As teams, students collect their own sample of animals in the river and set about identifying them. They use a data collection sheet to compile their data and that of other groups. As a class, they interpret their data. (This activity is adapted from the Creek Freaks Curriculum by the Izaak Walton League. The full supporting curriculum is freely available in the Library section of SaveOurStreams.net)

Prep: Prior to their field investigation, we recommend introducing your students to what a watershed is. If you're low on hands-on activities, a brief and engaging introduction of watersheds can be found in the Creek Freaks Curriculum. We recommend Watershed Hands, Watershed Address, and How to Build a Model Watershed.

Follow-up Reinforcement Ideas:

- Take your data collection sheets from your biological sampling back to the classroom and play with the numbers. Create different kinds of graphs and discuss statistics using team versus aggregated data. Compare your class data to national data available at saveourstreams.net.