

# A.P.E.S. ON THE HILL



## Castaic Lake Water Agency A.P.E.S.



The educators at Castaic Lake Water Agency (CLWA) have created an innovative, standards-based, educational program for AP Environmental Science high school students within the Santa Clarita Valley.

Educators at CLWA worked closely with several teachers of AP Environmental Science to develop a program that met the needs of their students.

Several field trip date options are offered to students through their teachers. The educators lead high school students through labs. They include soil types, soil structure and permeability and are supplemented by interactive lectures on soil horizons, environmental laws and regulations, and the water treatment process.

All topics are aligned to the AP College Board Standards. Labs and lectures are both outdoors and indoors giving the students enrichment not available at the school sites.



Burned Into History



## Water Quality Legislation

Students are introduced to the Water Quality Act and the Safe Drinking Water Act which were initiated to protect the public health of our nation's drinking water supply. Responsibilities of EPA and FDA are discussed.

Some points highlighted are; Restrictions on urban runoff, both industrial and municipal.

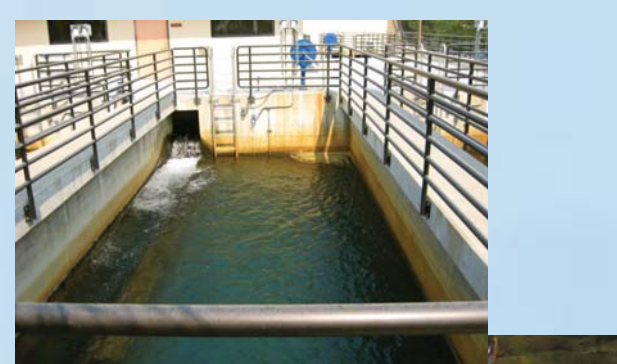
Regulation of substances that affect human health.

Aesthetic qualities of water.

Protection of drinking water and its sources.

Operator training, improvements, and public education.

Video of the water story and the importance of California's State Water Project.

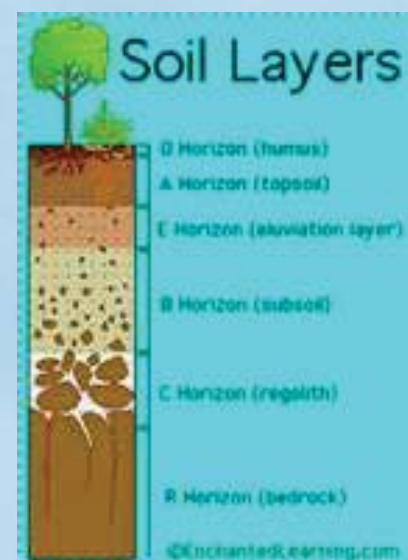


CLEVELAND PLAIN DE  
SLICK FIRE RUINS FLATS  
In Ohio Pen Rebels Fed at Gi



## Soil Horizons

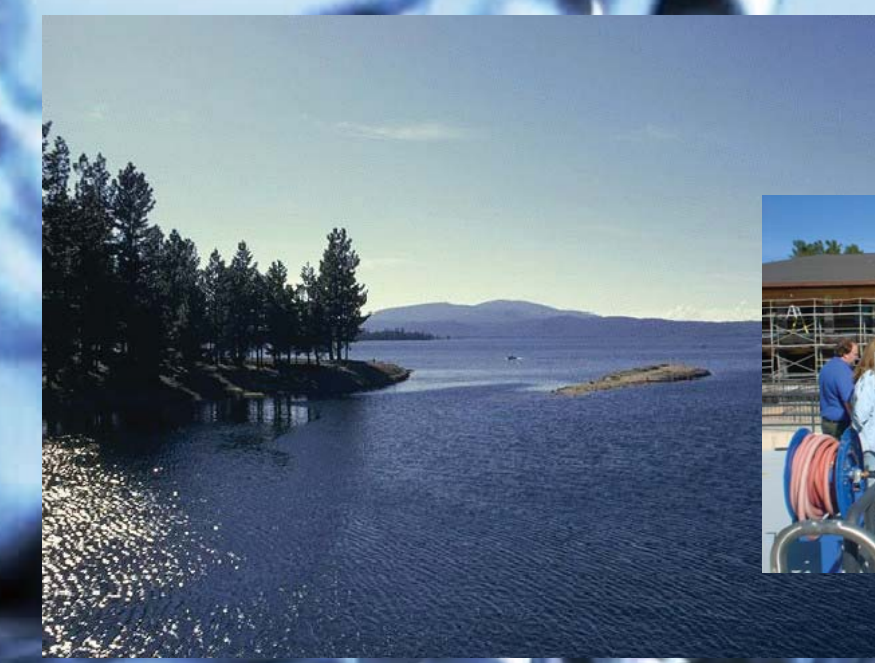
Using five soil types, students create their own soil horizon model. Based on their individual samples the group participates in dialogue. Discussion revolves around the factors responsible for the types of soil that form on our planet and the important part that water plays to influence those factors.



## Sieving

Using the transition horizon media from their soil horizon samples, the students sieve the media into five separate particle examples.

The breakdown of the soil and its components are discussed.



## Landscape Water Conservation

Using CLWA's eleven acre drought tolerant garden the students are introduced to different methods of water conservation and soil enrichment.

Composting methods, advantages and drawbacks.

Drought tolerant and fire retardant plants and their place in our community. The adaptation of plants to their environment.

Drip and sprinkler irrigation systems.

Properties and consistencies of soil and how to amend poor soils.

Crop rotation and the environmental effects on soil.

Soil erosion and ways to combat it.



## C. L. W. A.'s Model

An explanation of the water treatment process is presented by using a scaled model of the Rio Vista Treatment Plant. Following the journey of the water, the students view the process from the local reservoir to their homes.

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## Permeability

A hands-on experiment demonstrating permeability which is the speed or ability of water to move through a material.

Permeability is an important soil parameter for any project where flow of water through rock or soil is a matter of concern.

Comparison is made of the permeability and natural filtration make-up of gravel, sand, clay/silt, and loam.

Students make predictions and record capillary water and permeability rates.

