

Sewer Science Program

Sewer Science Program is an inter-disciplinary microbiology, chemistry, physics, and environmental curriculum, tailored to reach a diverse population of students at high school level, including those with special education needs and limited English speaking skills.

The program is designed to stress the importance of pollution prevention, and offers a comprehensive educational opportunity through the use of an innovative mobile water treatment lab linking science and technology to environmental issues.

Sewer Science Program corresponds to the learning standards and teaching objectives established for science curriculum in California. It provides interdisciplinary studies in area such as:

Chemistry

Environmental Science

Microbiology

Physics

Statistics

This program gives an overview of wastewater treatment and presents the concept of the following processes:

Primary sedimentation

Biological treatment

Secondary sedimentation

Filtration

Disinfection

Laboratory

During the one-week laboratory session, students prepare wastewater by adding common contaminants to simulate residential sewage and treat this wastewater progressively in three stages. The first stage is sedimentation, where the larger solids settle to the bottom, and the lighter ones float on top.

During the biological treatment, activated sludge from wastewater treatment plant is added to an aeration tank, where air is pumped into the tank constantly to keep the microorganisms alive. Students will study and identify these microorganisms using microscopes and an identification chart.

The last two stages of treatment are filtration and disinfection. After biologically treated wastewater is left to settle in the secondary sedimentation tank, it is passed through a carbon-sand filter. The final step of disinfection completes the process of wastewater treatment.

Students will measure wastewater quality, statistically analyze the series of data collected at each stage of the treatment processes, and learn about the negative impact of these contaminants to the environment. The wastewater quality tests include the measurement of Ammonia concentration, pH, Chemical Oxygen Demand, and turbidity. Students are instructed about laboratory safety techniques, along with analytical and scientific methods. They will observe how wastewater quality improves with each operation and compare their results with safe water standards.

Cost

This program has been taught in Los Angeles area schools since October 2003. Schools are not required to pay any fees for the services provided by the Department of Public Works. All chemical and equipment costs have been funded by the City of Los Angeles. The program also provides an in-class facilitator (mentor) to train and assist participating teachers.

Tour/Fieldtrip

Teacher and Students are invited to tour the City's Donald C. Tillman (DCT) Wastewater treatment plant or Hyperion Wastewater Treatment Plant.

Donald C. Tillman Water Reclamation Plant

The Japanese Garden
6100 Woodley Ave,
Van Nuys, California, 91406
Tel (818)756-8166 | Fax (818)756-9648

www.lajapanesegarden.org

Hyperion Wastewater Treatment Plant

12000 Vista del Mar,
Playa del Rey, California, 910293
Tel (310)648-5363 | Fax (310)648-5612

www.lacity.org/SAN/htp-tours.htm

Sewer Science Contest

Scientific Report will be based on the activities and lessons of the Sewer Science Program. The report will be supported with the data collected from the experiments performed during the program. The report must be submitted individually, following the guidelines and judging criteria listed in the Contest package. Report must be typed in font size 12 on 8 ½ by 11inch paper. Report must not exceed a total of ten pages.

Model consists essentially of two parts: a model of the City of Los Angeles conveyance and drainage wastewater system (to be built and submitted on or prior to the due date); and an oral presentation of the model on the day of the contest in June. The model can be submitted as a team of three to four members. Each member will file his/her application separately.

The model shall be constructed using recycled materials (such as cardboard, paper, rubber) and secured on a 2'x4' presentation board provided to your school. The model should include, but not be limited to the City's wastewater system from households, conveyance system, wastewater treatment plant and receiving waters. The model must be three-dimensional. The model must be original. Any off-the-shelf commercially available modeling systems will not be accepted.

The second part of the contest will be the interview. A group of judges will ask the contestants questions about the model or the sewer science curriculum. The question and answer period will last about 10 minutes. The team with the highest combined score on the model and interview will be declared the winner of the contest.

Contact Us

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For information, sponsorship or registration,
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www.wef.org



www.lacity.org/san

As a covered entity under Title II of the Americans with Disability Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

