OVERVIEW

"How Sustainable is your Local Water Cycle?"

Since 2000, the Global Connections and Exchange (GCE) Program of the US State Department, Department of Cultural Exchange and Education, has supported collaboration and online linkages among students, educators, and community youth leaders from U.S. and overseas secondary schools and youth organizations. GCE programs empower youth to use technology to address universal issues and to engage in dialogue with the international community. Participants expand their computer literacy skills, gain a deeper understanding of other countries' cultures, and learn to better use technology in order to develop their leadership skills and influence change in their communities. Participants at each of the U.S. and overseas sites engage in specialized trainings in digital dialogue and online media sharing, interactive theme-based discussions, and community outreach while collaborating on projects that are relevant to their communities and produce tangible, presentable outcomes.

The aim of this "US-Australia Virtual Environmental Partnership: "*How sustainable is your Local Water Cycle*?" initiative is to educate and inform responsible stewardship of water resources between U.S. and Australian students through an interactive virtual partnership. This US State Dept sponsored exchange in collaboration with the Australian Department of Education, Employment and Workplace Relations (DEEWR) will be implemented by scientists from The University of Maryland Center for Environmental Science and Bigelow Laboratory for Ocean Science in Maine, in the US, and partners from the Charles Darwin University, Darwin, Australia (http://www.usaus-h2o.org/).

Objectives

- Develop independent, "virtual", web-based teaching modules on sustainable water cycles and underlying environmental science principles
- Implement teaching modules that students can utilize to assess their own water cycle at the community level, and compare between climates at larger regional and international scales
- Facilitate US-Australian student environmental knowledge, cultural exchange and learning, and linkages between scientists and schools, through a virtual learning environment
- Enhance the knowledge and skills of high school students in the method of scientific hypotheses, data collection, interpretation and presentation of results through self-directed, group learning in both actual and virtual situations
- Provide science modules and workshops that enhance the teaching ability of high school teachers

We are selecting 8 schools in the United States and 8 schools in Australia, to partner in selected teams, paired on a geographic basis, to be part of this virtual initiative. We are looking for schools with a strong Environmental Science curriculum, with sufficient connectivity technology to support the exchange. Additionally, we will be selecting schools outside major urban centers, with a diverse population of students.

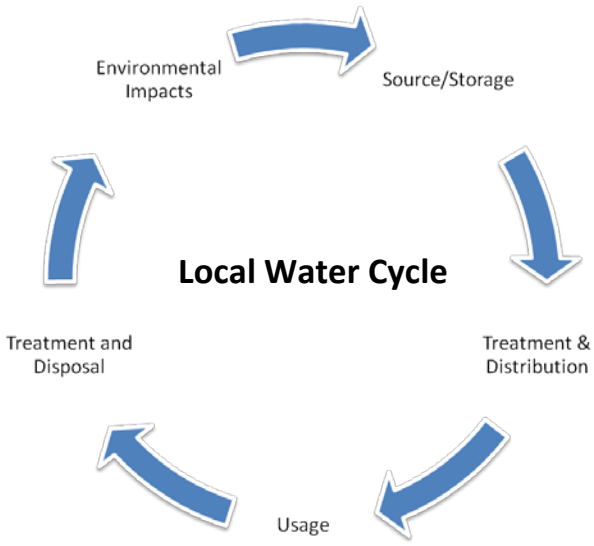
The program will be intensive, academic, culturally enriching and highly interactive. The program sponsors seek energetic applicants who are ready to develop their skills in order to be effective environmental leaders in their schools and communities. Adult participants in this program take on a unique role as a participant role model and as an active program participant. We expect the adult participants to be fully engaged in program activities while serving as a liaison between youth participants and program staff, should problems arise.

Student selected to participate in the Virtual-exchange program must be between the ages of 15 and 17 (as of 01 Feb 2013), enthusiastic about environmental science and have the capacity to communicate and interact with partner students in an electronic setting. They will be divided into teams of 4-8 to interact with partner teams in each country.

Online modules based on each school's local area water-cycle components (as outlined below), will be investigated. There will also be introductory modules to introduce students to geographic, climatic, and environmental conditions within a cultural context, for both the US and Australia. Students will work with their partner teams in the other country to compare and contrast these systems, through online interaction, forums, and "webinars". Ultimately, each school will grade their local water cycle in terms of sustainability, both environmentally, ecologically and health-wise. Each school will participate in a local "World Water Day Event on 22 March 2013.

How sustainable is your Local Water Cycle?

Each aspect of the water cycle will be assessed and graded by students based on sustainability criteria defined by students that incorporates economics, social welfare and the environment



Source/Storage (20% of grade)
- Rainwater (tank)
- Reservoir
- River
- Groundwater
- Desalination
- Wastewater recycling

Treatment and Distribution (20% of grade)
- Chlorination, UV, Ozone, Heat
- Filtration (none, sand, membrane)
- Pipes, Well, Foot, Truck, Boat, Rail

Usage (20% of grade)
- Quantity
- Drinking, Gardening, Cleaning, Cooling, Heating
- Restrictions

Treatment and Disposal (20% of grade)
- Any treatment?
- 1^o, 2^o, 3^o
- Disinfection steps
- Treatment of bio-solids
- Regulations and enforcement

Environmental Impacts (20% of grade)
- Receiving environment (river, bay, ocean, ground injection
- Type and severity of impacts
- Management, Monitoring and Awareness