INNOVATIVE LEARNING TOOLKIT

PROJECT TITLE: Interactive Models and Maps

Tags; mapping, modeling, stormwater

The aim of interactive models is to demonstrate, through hands-on interaction, the way a catchment or ecosystem works, and how the environment can be protected or polluted by the activities of households, businesses and transport in the area. These come in two forms: Physical and Digital.

EXAMPLES AND CASE STUDIES

Physical

One catchment model example, from Victoria, Australia, showed almost 1,000 primary school children how water flowed through the rivers, waterways and stormwater system to the ocean. Along the way the water flows in different ways depending on the how they use the various props and buildings in the model.
An interactive pollution model, where children can learn how to reduce pollution in their community while having fun by participating in a hands-on
http://www.pyr.ec.gc.ca/EN/IPM/index.shtml.">Non-Point Source Pollution Model. The web site aims to inspire kids, educators, community groups, parents, etc. to research and understand Non-Point Source Pollution and encourage them to build their own working model replicating their neighbourhood or community. The site describes how the model can be used while having fun learning about pollution and ways to reduce it.

Other examples of physical models that can be used in a range of situations include:

EnviroScape has a series of portable, table-top models that demonstrate the link between human behaviour and environmental quality. Models include: watershed (catchment) and stormwater, drinking water sources and treatment, wetlands and coastal environment
EnVision Environmental Education make groundwater flow models that include pumps to circulate water around the model, wells, springs, artesian wells, a lake, a malfunctioning septic system and leaking underground storage tanks. They also allow dye injection to simulate groundwater or contaminant flow
Environment Canterbury's Warm Home Model is designed to demonstrate the benefits of insulation and an efficient heating system in reducing heat loss. The model has two sides, one heated with an open fire with no insulation, and the other fully insulated and heated by

a flued gas fire. Displays on the model show how much heat is being lost and retained. It is lent out to other organisations for energy efficiency and clean air promotions

For ideas on how to make a catchment model, designed by the Queensland government to fit into the school curriculum,
see http://www.nrw.qld.gov.au/education/teachers/water/activities/activity10.html. This

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could easily be adapted to suit a range of different audiences and could potentially be done during a planting day.

Another technique along similar lines is presented in the Box City case study. This is a model-building technique that uses a kit of simple blocks of various sizes and shapes representing typical urban buildings. The blocks are used by a group to make and plan different configurations of the buildings in their area.

CERES (the Centre for Education and Research in Environmental Strategies) is a fantastic example of a large-scale model of a sustainable society. Located on 10 acres of land on the banks of a creek in Melbourne, CERES runs on renewable energy, is a 55 tonne carbon sink, conserves and recycles its water and waste, grows organic food, and teaches diverse audiences about environmentally friendly ways of living.

Digital

Digital interactive models use applications such as Google Earth to allow people to move around maps, as well as upload material onto map sites. Some of the most innovative environmental community education and monitoring projects are using this kind of model to help people make bridges between their online leisure activities, and their local environment.

A powerful example of this is the Neighbours Against Irresponsible Logging (NAIL) case study, in which a concerned resident created a Google Earth map showing a proposed logging plan over a high definition 3D satellite image of her area. She used a range of mapping techniques to very clearly and powerfully demonstrate the scale and location of the proposed logging.

Another great example is the Appalachian mountaintop removal case study, in which people can use an online map to click on where they live, and see a visual connection between their house and the source of their coal. If you then click on the coal power plant supplying energy to your house, it shows which mountains were cleared to provide that coal.

IDEA INCUBATOR

a cross-catchment initiative that includes a digital map component and allows community to monitor, and/or locate themselves in relation to energy sources as per the ...case study. This could be combined with ideas from ARGs (see bottom of games page) to create a sense of mystery and adventure as people track and find clues, and upload stories and observations.

An idea, raised by one wai-wiki participant, is to build a model of a catchment over roughly 1 hectare of land that people can walk through and around. The model could demonstrate to the public how a catchment works, how water flows through the catchment, and how the water quality is affected by household, business and traffic activity. The area could be attractive simply as a park, but would also have interpretive signs, and information on the

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potential impacts of household pollution etc. A more sophisticated version could potentially have activities and moving models so people could interact and observe the impact of their behaviour on the catchment. (Waiwiki authors believe that if this was integrated with more creative aspects as part of a larger art installation, this could be a wonderful public interactive art/edcucation project)