

Watershed Educational Game

Aimed at a 4th to 6th grade audience, this game takes a highly interactive “problem solving” approach to educating people on the types and sources of water pollution and potential solutions.

Players take a canoe trip down the river from the mountains to the ocean. Along the way they pass pollution causing situations and similar but non-pollution causing situations. Players identify potential sources of pollution, ascertain whether or not significant pollution is present, and, if so, choose the most appropriate solution from a palette of options.

For example, a player passes an agricultural feedlot that abuts the river. Taking a water sample for nitrates would show that the feedlot is indeed polluting the river. Among the mitigators in the solutions palette are a settling pond and a greensward. While the settling pond is a solution, the chance of flooding negates this particular option, as the “best” choice while the greensward would be the most successful intervention. The pond might be worth 6 points whereas the greensward would be worth 10 points.

The visual approach to the playing screen and the mitigation screen are intentionally different so players are always aware of what part of the game they are in..

Examples of pollutants vary from region to region, with inorganic chemicals leaching from mines in the mountains, to pesticide runoff in the plains, to industrial hot water dumping and chemical leaks near the coast.

For the initial proof-of-concept version I built an online single player version. A more robust multi-player version could be offered free of charge to educational and environmental agencies.

Technical Information/Content

Point source pollutants include:

- Sediment runoff (deforestation, agriculture)
- Mining chemicals (cyanide, mercury, etc.)
- Extremes of water temperature (dams can cool, factories can heat)
- Animal wastes
- Hydrocarbons from leaking tanks and pipes
- Organic wastes from food and other processing
- Pesticides from agriculture
- Fertilizers from agriculture
- Detergents from urban areas

Point source pollution mitigation solutions offered are:

Add a dam; add a greenbelt, temperature remediation; rebuild damaged infrastructure, build a settling pond, bacterial remediation; moderate pH; practice better tillage; reforestation; chemical recovery; and add constructive wetland.