Activity #5: The Sum of the Parts

Introduction

This activity demonstrates how each watershed user affects every downstream user of the resource. This activity would also work well with **Ch. 7, Human Impacts**. It emphasizes that different landowners have different agendas, and that regulations will affect industry, agriculture, homeowners, and recreational users in different ways. Review the terms **point source** and **non-point source pollution** (p. 64) before you begin the activity. A **point source** is an identifiable, localized source of pollution, like a sewage ditch or factory effluent. A **non-point source** is one without an identifiable source, like agricultural (fertilizer) or roadway (motor oil) runoff.

Time: about an hour **Ages**: upper elementary to middle school

Materials

- Long sheet of poster paper or newsprint
- Drawing pens and pencils
- Office supplies (e.g., pencils, paper clips, books)

Prep Work

Using a blue marker, number and divide the paper as shown, so that there is one section for each participant. Draw on the river and mark off equal-sized sections. Each section should include some water and some riverbank (as in Fig. 1). Cut the sections and laminate them, if you like.

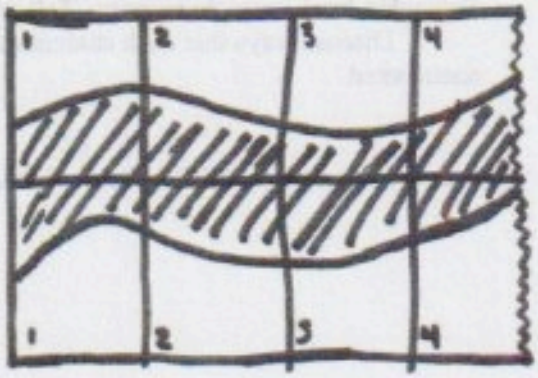

Fig. 1

Procedure

1. Inform students that each of them has just inherited a piece of riverfront property and a million dollars. Have them list ways they could use the land and the money.

2. Pass out "pieces" of property and drawing pens and pencils. Explain that the blue is water and the blank space is land they own. They have one million dollars to develop their land as they wish. They can farm or ranch; build resorts, homes, factories, or parks; plant forests, log, mine—whatever they like.

3. When students have completed their drawings, ask them to look in the upper left-hand corner of their property for a number. Explain that each piece is actually a part of a puzzle. Starting with number one, have students assemble their pieces. They will construct the stream pathway and adjacent land area in proper order (Fig. 1).

4. Have students describe how they developed their land and how they used water. They should identify any of their actions that polluted or added materials to the

waterway. Have students represent each of their contributions to the river with an item from their desks (e.g., book, piece of paper, pen, pencil).

5. Tell students to take their item(s) and line up in the same order as their pieces of river front property. They are going to pass their pollution pieces downstream. Have them announce what kind of pollutant they are holding before they pass it on. The ones will pass their item(s) to the twos, the twos will pass everything to the threes, and so on, until the last students are holding all the items.

Discussion

After all the items have reached the final students, discuss the activity. How did those students toward the middle or end of the river feel? What about their property use plans? Could a student downstream be affected by the actions of a student upstream? Could upstream users alter the quality of those downstream?

Tell students to reclaim their items. Explain that the items easily identifiable as their own simulate point source pollution. Other items (e.g., pencils, paper clips, notebook paper) may be more difficult to claim, because these kinds of pollutants originated from multiple sources. Tell students these represent nonpoint source pollution.

Discuss ways that each student might reduce the amount of pollution he or she contributed.

Adapted from Project WET *Curriculum & Activity Guide*, "Sum of the Parts," p. 267-270