

“Sum of the Parts” [MC]

Adapted from Project WET® and New Wave of Learning

Grades: 6-8

Time: 45 minutes to 1 hour

Goal: To demonstrate how everyone contributes to the pollution of a river as it flows through a watershed.

Objectives:

Students will be able to: distinguish between point- and non-point source pollution; recognize that everyone is responsible for the pollution of the water source in their community; and identify best management practices to reduce pollution.

Key Words:

Point-source pollution
Development

Non-point source pollution
Water quality

Urban sprawl
Watershed

Background Information:

Adapted from New Wave of Learning

Point-source pollution causes major damage to any aquatic system, especially within the estuarine environment. Because the estuary has water flowing into it from both upstream rivers and the ocean, it can be exposed to pollution from both sides, causing detrimental damage to occur. Inland and upriver, most pollution enters the waterways either by passing through a storm drain on the side of the road, percolating down into the soils, or being dumped directly into a tributary or the river itself. Water in a watershed always flows downstream, and because these pollutants do not pass through a water treatment plant, they are directly emitted into the estuary. Ocean pollution, by contrast, can come from boat oil or illegal dumping of chemicals, as it is pushed into the estuary with the incoming tides and currents.

There are two main types of pollution: point- and non-point source pollution. Point-source pollution is often described by its namesake and usually consists of pipes that emit pollutants directly from a factory or plant into the water. You can literally “point” out where the pollution is coming from and “point” blame on the culprit. Non-point source pollution is much more difficult to identify the cause or where it originally came from. Pet waste, detergents and soaps from cars or homes, fertilizers and pesticides for lawns and gardens, and general garbage debris can all be considered non-point source pollution. These items can be twice as detrimental because they tend to be exponentially added to the water system.

In the Barnegat Bay watershed, for example, pollution of any kind, but especially water pollution, affects everyone and everything, from the water we drink, to the lakes and ponds we might swim in, to the rivers and bays organisms use as their home. Since we all utilize this vast water resource collectively, we are the only ones who can do something about it. Everything that enters a system upstream will eventually make it downstream so what we do will affect how someone else utilizes the water source we both share.

Directions: Using the watershed picture below, draw different types of point- and non-point source pollution. Label the parts of the water cycle.

