

How Does Pollution Get from Land to the Ocean?

Toxins can be transported to the ocean in many ways. In the past, people dumped their trash directly into the ocean. Pollutants can also get to the ocean from rivers, the air, or through runoff. Runoff is rain water that flows through the land and into the ocean.

Materials:

Long, shallow baking pan

Tap water

Cookie sheet

2-liter pitcher

Soil

6 blocks

Trowel

Red food coloring

Procedure:

1. Place the baking pan on the floor.
2. Place one end of the cookie sheet on the long edge of the pan. Use the blocks to raise the other end of the cookie sheet about 4 inches above the rim of the pan.
3. Cover the surface of the cookie sheet with soil.
4. With permission, use the trowel to dig up 5 small grass clumps. Set the grass on the soil-covered sheet.

NOTE: The grass clumps can be replaced in the ground when the experiment is done.

5. Squeeze 5-6 drops of food coloring at the base of each clump of grass.
6. Pour a shallow layer of water in the baking pan (about 1 inch).
7. Fill the pitcher with water.
8. Hold the pitcher at the raised end of the cookie sheet and ***slowly*** pour the water across the soil at the raised end of the sheet.
9. Observe the color of the water washing into the pan of water.

Read the following information:

Although we hear a lot about oil spills and trash as pollutants, because they are very visible - runoff is actually one of the most harmful sources of pollution to the bay and the ocean. Runoff can flow through farms, highways, city streets, lawns and mines. It can pick up the following pollutants and carry them to the ocean: fertilizers, pesticides, salt, oil, and all kinds of chemicals.

Use your results to answer the following questions in your notebook:

1. Assume that the red food coloring from your experiment is fertilizer. Where did the fertilizer end up?
2. If fertilizer helps grass or other plants to grow, what will it do to algae (plankton) in the bay?
3. When algae grow too quickly, it is called a bloom. The algae then die and are eaten by bacteria that use up all the oxygen in the water. What happens to fish, lobster and other animals in the water if bacteria use up the oxygen?
4. Based on your homework reading and the article on Lobster Shell Disease, what are alkylphenols found in and could they be transported via runoff?