

# HOW TO:

## BUILD A MODEL WATERSHED

### SIMPLE PROJECTS FOR CONSERVATION

It's a simple matter of gravity: Water runs downhill. This model watershed offers a clear visual demonstration of how water picks up sediment and pollutants as it flows — and that simple measures can reduce the amount of polluted runoff that ends up in your watershed.

This is a good project for talking with school children about water pollution and what they can do to prevent it. It's also a great indoor conservation project and travels well to expos and county fairs.



### Materials

- Disposable aluminum cake pan or a plastic bin
- Florist foam
- Aluminum foil
- Model farm animals (cows, pigs)
- Small models of barns, houses, industrial buildings
- Permanent markers (e.g., a Sharpie®)
- Watering can or spray bottle
- Chocolate pudding/hot chocolate mix
- Lime gelatin mix
- Orange gelatin mix
- Straw
- Small pieces of artificial turf
- Craft glue
- Plain modeling clay (colored clay will run when wet)
- Sponges
- Bucket

### REQUEST TO READERS

*If you build a project based on this or other Outdoor America articles, or if you have an idea for a good conservation project, please e-mail us at [oa@iwla.org](mailto:oa@iwla.org).*



**Three-step landscaping:**  
Sculpt foam inside a cake pan, cover it with foil, and outline a river and lake.

**1. Develop Land:** Create your landscape inside the cake pan using green florist foam (available at craft stores). Buy blocks and round pieces of foam and arrange them to represent two tall mountains on the outer edges of the pan. A river should run between the mountains down to a lake. Make a shallow depression for the lake to hold water.

**2. Cover Ground:** Cover the entire landscape with a large piece of aluminum foil. Start from the middle and gently press the foil into the hills, valleys, and waterways. Fold the foil over the edge of the pan to help hold everything in place. You may need multiple sheets of foil.

**3. Run a River Through:** With a permanent marker, draw the outline of the river running through the middle of the mountains and the lake at the bottom.

**4. Build:** Put in land-use areas by placing model homes, barns, factories, and animals around the watershed, from the hills to the lakeside. You may need craft glue to hold these in place. Draw roads, fields, and other landscapes to tie the community together.

**5. Pollute:** Sprinkle chocolate pudding/hot chocolate mix near animals to show manure and/or near construction sites to show exposed

ILLUSTRATIONS BY BOB DRY/[WWW.DRYSPOND.COM](http://WWW.DRYSPOND.COM)



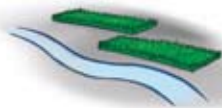
Hot chocolate and gelatin mixes give kids the “dirt” on non-point source pollution.

dirt. Sprinkle lime gelatin mix near houses to represent lawn-care chemicals. Sprinkle orange gelatin mix on farm fields to represent agricultural chemicals (pesticides, fertilizers).

**6. Rain!** Use the spray bottle or watering can to start a rain shower in the mountains. The chocolate, lime, and orange mixes will color the water to show how water pollution can wash down through the watershed, ending with very dirty water in the lake that demonstrates a high level of pollution.

**7. Remediate:** Dump the water into a bucket and rinse off any residue. Sprinkle the chocolate, lime, and orange mixes in the same spots, taking additional steps to prevent water pollution before the next rainfall.

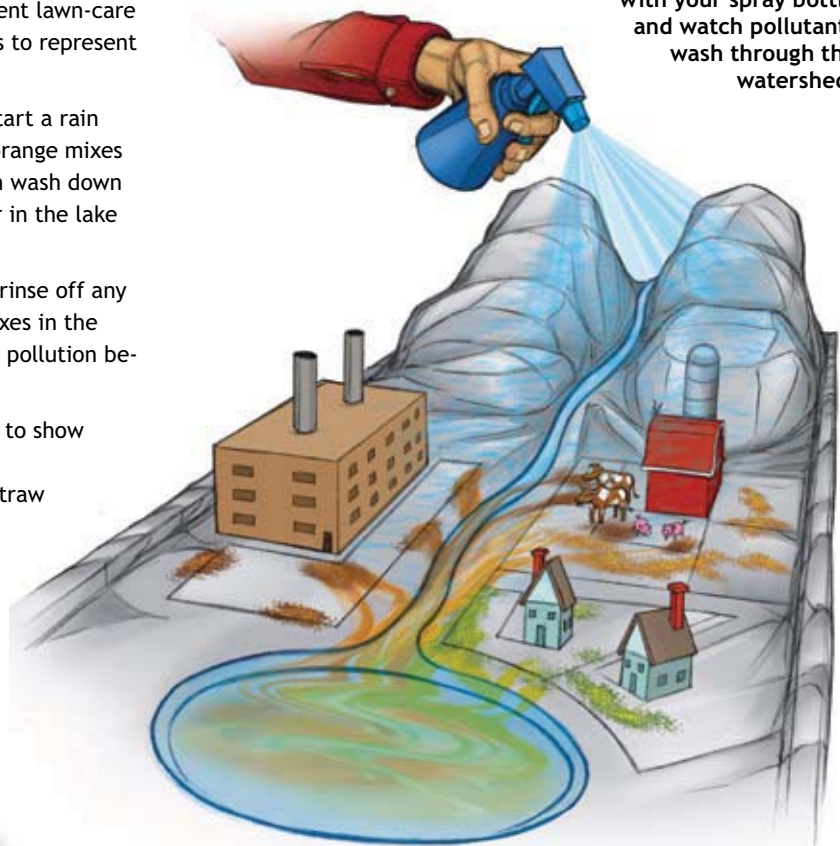
- Use smaller amounts of the lime and orange mixes to show more careful use of chemicals.
- Cover chocolate mix near construction sites with straw to prevent rain from washing away exposed soil.
- Use clay to build barriers around the areas of manure, which will hold runoff water until it can be cleaned.
- Cut small pieces of artificial turf and glue them down between the river and the orange and lime mixes on the farm. These turf pieces represent contour plantings and grass buffer strips, which help filter pesticides and fertilizers from agricultural runoff.



- Cut small pieces of sponge to place near pollution areas and in low spots where water may gather. These serve as wetlands, which filter runoff by trapping and breaking down pollutants.
- Cut small pieces of artificial turf to place along the banks of the river to represent a buffer of stream-side trees and shrubs to slow runoff and trap pollutants.

**8. Rain Again:** Use the spray bottle or watering can to create a second rainfall. The water that ends up in the lake should be much less colorful because you took multiple steps to keep pollutants out of the runoff.

Create a “rain storm” with your spray bottle and watch pollutants wash through the watershed.



### A Few Talking Points

- A watershed is an area of land that drains water, sediment, and pollutants into a common body of water. For example, the Chesapeake Bay watershed is thousands of square miles of land and waterways that all eventually drain into the Chesapeake Bay. A watershed can also be a very small area that drains into a local pond or stream.
- Pollution on land in the watershed eventually ends up in the water. Fertilizer, pesticide, and manure run-off from farms and yards can put potentially harmful chemicals and pathogens in rivers and lakes. Incorrect disposal of household and industrial chemicals can lead to deadly chemicals in waterways. Excess sediment from construction sites can wash into streams, smothering fish eggs and the bottom-dwelling bugs fish eat.
- Healthy watersheds and clean water are important to protect the rivers, streams, and lakes we use for drinking water, recreation, and fishing.