CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Avenlea L. Gamble

Project Number
S1810

Project Title
Run from the Runoff

Abstract

Objectives/Goals
The purpose of my experiment was to see how common chemicals that end up as runoff in our waterways effects pond organisms. The pond organisms I used were daphnia, and the chemicals I used were used antifreeze, motor oil, common pesticides, and car soap.

Methods/Materials
Method: I placed 6 daphnia in a clear dish with 98 mL of water and 2 mL of which ever chemical I was using that particular experiment. Every 15 minutes, I wrote down observations of any harm or deaths that occurred among the daphnia group. I observed up to 45 minutes, and after every 15 minutes, I checked the 2 most harmed/dead appearing daphnia under a microscope and compared them to a control group of daphnia. Materials: microscope, slides, daphnia, spring water, measuring spoons/cups, pipettes, motor oil, used antifreeze, car soap, pesticides, petri dishes, timer, and supplies for the daphnia.

Results
Twelve daphnia died in all. Seven of the twelve fatalities were caused by pesticides, three by antifreeze, two by the motor oil, and none caused by the car soap. The pesticides seemed to slowly be shutting down their systems, as I observed under the microscope. The motor oil immobilized the daphnia, the antifreeze either had no effect on the daphnia or would suddenly kill them, and the car soap did nothing.

Conclusions/Discussion
The pesticides killed the most daphnia, but the motor oil had the most harmful effect. By becoming immobilized, daphnia cannot get food, flee from enemies, or move. The pesticides seemed to cause a painful and slow death, which should be realized by all as a cruel death for the pests it's meant to kill, even if they are pests. Ultimately, it must be realized that when our car leaks or we spill these chemicals, we are killing organisms.

Summary Statement
My project is about how chemicals we commonly spill can and does harm the organisms in the water that the chemicals end up in.

Help Received
Borrowed microscope from my teacher Mrs. Erin Vaccaro; Mrs. Erin Vaccaro ordered my daphnia from a company for me