



Integrated Pest Management

A curriculum module for high school science classes

from Toxic Free NC, www.ToxicFreeNC.org

Side Dish Activity: Drawing Pesticide Exposure

Length:

Introduction and questions about assignment: 15 minutes

Complete assignment: depends on size and detail, also on use of art or computer graphics tools

Learning Goals:

To understand how environmental contaminants get into our bodies, and the types of effects they may have there.

To be able to both depict graphically and explain verbally how pesticide exposure happens.

Guiding Questions:

How do pesticides get into our environment?

How do pesticides get into our bodies?

What does “exposure” mean?

What sources of pesticide exposure can we control, and what sources can't we control?

What effect does a particular pesticide have on the way our bodies work?

What health problems can result from that effect(s)?

Activity description:

Students should work in small groups to research, and then draw (or otherwise depict with a collage? computer graphics? found objects?) a pesticide exposure, from beginning to end. You can assign students to work on a particular chemical, or have them choose one of their own. As a side dish for the Local Institutions Entree, it is suggested that students work in the same groups they are already in for their research projects, that they depict exposure to the same pesticide that the group is already researching, and that the final product can be incorporated into the final Powerpoint presentation.

The drawing can either be in "comic strip" form, with each frame depicting one step in the chain of events, or in the form of one drawing with different regions that each depict a different part in the chain of events leading to an exposure. Someone looking at the finished drawing should be able to understand the source of the exposure, i.e., how'd that chemical get there in the first place?; the route of exposure, i.e. how's that chemical get inside the body?, and the impact, i.e. how does that chemical damage the body?

For example, the drawing might be in comic strip form, and show an orchard where methyl-parathion is being applied to a peach tree. Then in the next frame, the peach (carrying the residue) is harvested and shipped to a grocery store. In the next frame, a family buys the peaches. In another frame, a person eats the peach, and is exposed to methyl-parathion through her or his digestive system. In the next frame, zoom in to see molecules of methyl-parathion, an organophosphate pesticide, bonding to molecules of acetyl cholinesterase (an important nervous system enzyme) and keeping them from breaking down acetyl choline. In the next frame, there is an excess of acetyl choline stimulating the neurons to fire, and in the final frame, the person feels dizzy or cannot concentrate.