**Having Fun with Styrofoam**

Nothing wrong with having a little fun with Styrofoam, and learning a bit about the solubility properties of cross linked polymers in the process.

***\*\*\*HERE'S WHAT YOU'LL NEED\*\*\****

* Styrofoam cups, dishes, or packaging (I especially like the "peanuts"!)
* Acetone (While nail-polish remover works, pure acetone with no water added is faster and much more impressive. Acetone is a universal organic solvent available at hardware stores or organic chemistry labs.)

Make a small puddle of acetone on a flat surface (work outside or in a well ventilated area). Place the Styrofoam in the puddle. If you are using nail- polish remover, the Styrofoam will slowly "melt" into the puddle. If you are using pure acetone, the Styrofoam will sink into the puddle almost immediately, like the Wicked Witch of the West in "the Wizard of Oz." Since Styrofoam is mostly empty space, you can add quite a bit to a small puddle. All that remains is a sticky residue. What causes this rather dramatic effect? When Styrofoam is placed in acetone, the long polymer strands are dissolved, releasing the trapped air and causing the structure to disintegrate. However, the insoluble cross linked parts of the polymer keep the polystyrene from dissolving entirely, in much the same way as buoys on nets keep the entire net from sinking to the bottom of a lake. Once the acetone evaporates, you are left with a hard cross linked polystyrene residue. Try it! You don't have to be a scientist to appreciate it, and you don't need a degree to have a basic understanding of polymers and . . . SCIENCE!!!