PVC Garden Trowel

by **Thinkenstein** on July 15, 2010

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Intro: PVC Garden Trowel

This PVC garden trowel was made of scrap material. The thickness of the material is about 3/16 inch. It may need sharpening occasionally, but it will probably never break.

step 1: Scrap material

This is the piece of scrap I started out with. You can cut something similar out of a piece of pipe to begin with.

step 2: Safety while heating PVC

We love plastics for what they do for us, but plastic manufacture and decay tend to pollute the environment and negatively affect our health.

Vinyl Chloride, one of the components of PVC, is carcinogenic. When it is locked up in the polymer, however, it is much safer to be around. In my years of experience working with PVC, I have not noticed any adverse effects on my health from being around it.

Always work in areas with good ventilation. If you do get caught in a cloud of smoke, hold your breath and move to clean air.

When heating PVC with a gas stove or propane torch, try not to let it burn. Smoke from burning PVC is bad. With experience one burns it less and less. Don't panic the first time you do burn some. It scorches, but doesn't immediately burst into flame. Move the material away from the flame and try again. Don't breathe the smoke. Smoke avoidance comes naturally for most people.

While heating PVC over a gas flame, keep the plastic an appropriate distance from the flame to avoid scorching the surface before the inside can warm up. It takes time for heat to travel to the center of the material being heated.

Keep the plastic moving, and keep an eye on the state of the plastic. When heated, the PVC material is flexible, like leather. Beyond this stage, you risk scorching it.

A word from James, the plastic engineer -- "Just a word of warning, PVC can handle some high heats but if it catches fire, you wont be able to put it out, it does not need oxygen to burn so don't do this inside".

I do work inside, but my house is made of cement and has good ventilation. MAKE SURE THAT YOU HAVE GOOD VENTILATION. PLAY WITH FIRE -- CAREFULLY.

step 3: Heat forming the handle

Heat the part of the material that will become the handle until it softens. (Leave the blade part cold.)

I used a piece of 1 inch diameter pipe to form the softened material around. I wrapped it with a mail order catalog to protect my hands from the heat, and to help keep the handle uniformly cylindrical.

Heat, wrap with the catalog, and squeeze with your hands. Hold it until the plastic cools and rigidifies.

On the first attempt, I got the handle at an angle that was not to my liking. I decided I wanted it to run parallel to the blade direction.

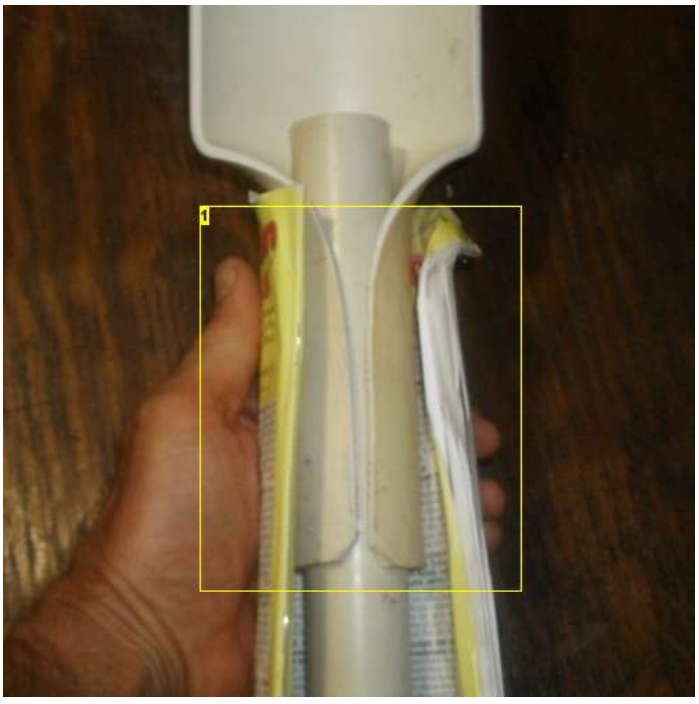

Image Notes
1. Wrap the heated section with something to protect your hands from the heat.

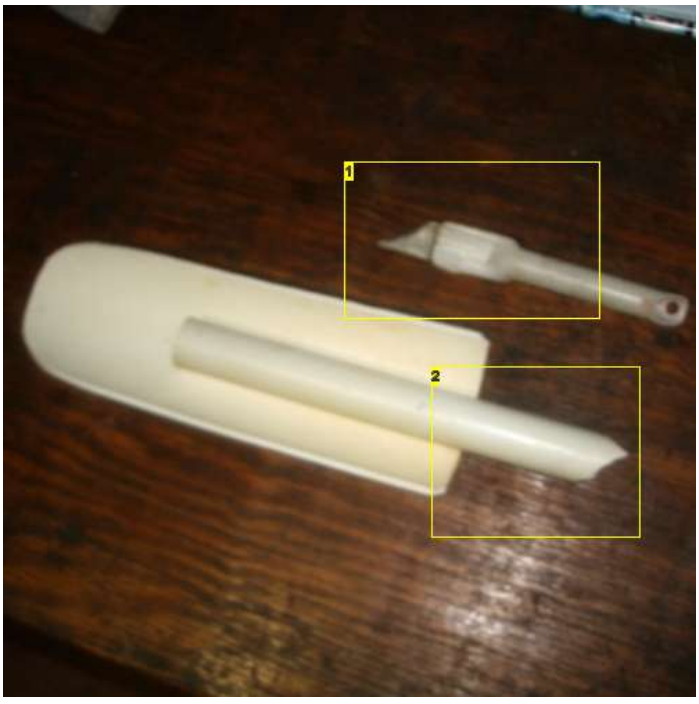

Image Notes
1. I used a scraping tool (a broken knife blade with a PVC handle) to smooth the

edges of the material.
2. A piece of 1 inch diameter pipe to form the handle around.

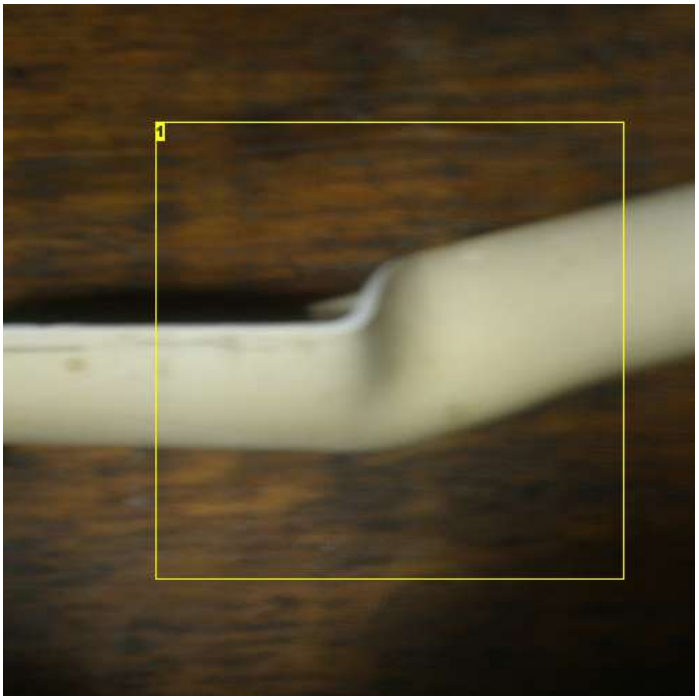

Image Notes
1. On my first attempt, I got an angle between the blade and the handle that I decided was not to my liking.

Image Notes
1. This is the 2-burner gas stove I used.

step 4: Modifying the handle-blade angle

To modify the handle-blade angle I used a propane torch to localize the heat just where I needed it. I didn't want the adjoining plastic of the handle to soften and unfurl, so I wrapped it with some masking tape.

I wanted a little jog at the joint area, so I raised the handle on a book while pressing the blade down to the table. That made the blade and handle directions parallel.

Image Notes
1. A little temporary masking tape to make sure the plastic handle didn't open up when the neighboring plastic was heated.

step 5: Shaping the tip of the trowel

The scrap plastic was too rounded to make a good trowel, so I penciled in the modification and formed it with a miter saw and a course file. I sharpened the edge of the blade a little with a file to help it dig into the dirt easier. There was no point in getting it too sharp, because it is plastic and will dull faster than a metal blade.

step 6: Hole in the handle

I like to hang up my tools to keep them organized, so I drilled a hole in the handle.

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