

## Change Me!

### Getting Ready

You can change clothes, a mind, and make change. Use these chemicals to *Change Me!*

**Stuff to Make it Happen** (*Be careful with all chemicals, they can burn you!*)

sodium hydroxide	hydrochloric acid	water*
phenolphthalein in ethyl alcohol	2 pipettes	labels*
3 clear cups*	gloves / goggles*	

**CAUTION!** *Sodium hydroxide and hydrochloric acid can BOTH burn you. Use cold water to clean any skin or surface you spill these chemicals on. Phenolphthalein is flammable!*

**Making it Happen** (*Goggles and gloves are required to do this activity*)

1. Fill the cup 1/2 full of water. **BE SURE YOUR PIPETTES ARE ALL CLEAN!**
2. Open the phenolphthalein bottle. Pour four or five drops in. Swirl the liquid very gently to mix it up. Close the phenolphthalein bottle. (*It is flammable!*)
3. Observe the cup. Describe the liquid. Do you see any color? No would be the right answer! Do you see any color in the hydrochloric acid or sodium hydroxide? Again no color.
4. Slowly start putting drops of sodium hydroxide into the water cup. Gently swirl the solution. Notice the color starting to show up! **STOP** when the solution stays colored. **WOW!** *Rinse your pipette completely with clean water.* Set it aside.
5. Let's put in some hydrochloric acid. Start adding drops of hydrochloric acid slowly with your *other* clean pipette into the colored water cup. Swirl it. It should go back to clear!

### Understanding the Science

This activity shows the effect of an **Indicator**. Indicators change color to show when the **pH**, its **Acid** or **Base** content, is changing. The numbers for pH run 1-14. 1 up to 7 is an **Acid**, exactly 7 is **Neutral**. Your original water was around 7 or neutral. A pH from 7 to 14 is a **Base**. The lower the pH number, the stronger the acid. A high pH means you have a strong base. The indicator here is called phenolphthalein. (Say the ph as a "f".) It turns pinkish-red if the **Liquid** is a base, this chemical is colorless in a neutral or acid solution.

### Let's Check the View! (Questions and Assessments)

1. A swimming pool's pH is 6.5. Is it acid, base or neutral?
2. Farmers sometimes must put a substance called agricultural lime (a mild base) on their soil. Why do you think they do this?

