**3: Silver into gold**

Chemicals reacting can make electricity, but electricity can make chemicals react, too.

**Instructions**

1. Attach an iron nail to the empty alligator clip connected to the battery.
2. Hold on to the wire, and lower the nail into the blue liquid
3. Take it out every now and then, and you should see a dark coating forming on the nail (this is copper from the blue solution of copper sulphate)
4. Hold the nail in the blue liquid for 30-60 sec, and then take it out. Moving it around a bit will help t get an even coating.
5. Use a piece of paper towel to hold the nail and unclip the wire (the brown copper deposit is soft, and will stain your fingers, but washes off easily)
6. Rub the nail dry with the paper towel, and the powder will rub off, but a pinkish coating of copper should now be on the nail
7. You can take the copper coated nail with you, or put it in the bin, along with the dirty paper towel.

**What is happening?**

The blue liquid contains dissolved copper particles. When these particles can grab electrons from the battery (which travel through the wire and the nail), they are turned into solid copper metal, and no longer dissolve in the liquid. Instead, the copper is deposited on the surface of the nail where the electrons are, turning it a pinkish colour. This is how gold plating is done, which makes some cheaper metal look like gold, but which only has a very thin coating of the precious metal.