

Classroom Chemistry – Purifying Water

This water experiment demonstrates the power of the Sun.

Materials:

- Large clear bowl
- Table salt
- Food dye
- Cling, Saran or any clear plastic food wrap
- Drinkable tap water
- Drinking straw
- Pebble or small stone
- Heavy glass drinking glass



Procedure: (Remember to have your parent’s permission and have them watch and help you.)

- Put some water in the bowl with the salt and the food dye until you have an unpleasant looking (and tasting) solution.
- Extra ingredients such as vinegar, garlic, sugar, cinnamon, turmeric etc. can be added to increase the unpleasant taste of the mixture. This will be the “polluted water”.
- Place the drinking glass the right way up in the CENTRE of the bowl so it is surrounded by your unpleasant mixture. Be careful to make sure the glass is tall enough and that none of the yucky mixture spills inside the glass but low enough to fit below the rim of the bowl.
- Cover the bowl with the plastic wrap. Seal it tightly all around the top of the bowl but it should be a little bit loose in the middle so it sags down in the middle.
- Place the pebble on top of the food covering in the centre of the bowl so that it makes a dip in the plastic sheet, EXACTLY above but not touching the opening of the drinking glass.
- Carefully place the whole setup in the sunshine.
- Periodically check on what is happening.

What's happening?

The Sun’s heat is trapped by the plastic wrap and absorbed by the polluted water. As the temperature in the bowl increases water evaporates out of the polluted solution. Water vapour reaches the plastic wrap and condenses to form water droplets. Water condenses because the temperature inside the plastic covered bowl is higher than outside the bowl. The droplets gather together, run down the underside of the food covering to the point where the pebble is sitting, and then drips into the cup. This purified water in the glass is fit to drink.

Extension:

Survival sites on the web can tell you how to build a “solar still” to purify water that uses this idea.

This activity is based on our “Classroom Chemistry” kit that is currently under development. The source for this lab is: <http://easyscienceexperiments.co.uk/purifying-water>. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, “Making Science Fun”. Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.