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| Chemical Demonstrations |
| Hydrogen Bubbles |

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This reaction can be applied to curriculum for excellence.

SCN 3-19a

*Through experimentation, I can identify indicators of chemical reactions having occurred ...*

National 4 – Chemical Change & Structure

*Energy changes of chemical reactions*

National 4 – Nature’s Chemistry

*Fuels,*

**What you will need**

**Method 1**

* Hydrogen cylinder with regulator
* Length of rubber tubing
* A bottle of glycerol
* Washing up liquid
* The following apparatus:

A 1 litre plastic lemonade bottle with base cut off

Aluminium foil to line the cut – (stops the plastic melting)

Water to level of foil with a few drops of food colouring + a good squirt of washing-up liquid + a few drops of glycerol

Thin plastic tubing on end of glass -end tied off and perforated with small holes

Stopper to fit bottle and fitted with glass tubing

Tubing to gas cylinder

Screw down clip on the tubing to prevent leakage from the bottle

**Method 2**

As above but you can just have the tube dipping into a bowl of soapy water rather than use the apparatus above

**What you do**

1. Set up the apparatus.
2. Turn the gas supply on gently and produce a fine stream of hydrogen bubbles. This will make a foam. When enough bubbles have been produced, switch off the gas.
3. Take a handful of the bubbles. Wipe the underside of your hands to make sure there are no bubbles there.
4. Hold the bubbles in your hand at arm’s length
5. Either use your other hand or get someone else to light the bubbles on your hand.

**Safety**

Wear eye protection

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Care when igniting hydrogen - flammable

Because the flame goes upwards, as long as there are no bubbles on the underside of your hand, you will only feel a slight amount of heat and there will be no burns at all.

**It is the responsibility of teachers doing this demonstration to carry out an appropriate risk assessment.**