

# Microscale Chemistry - Teacher's notes overview

Contained in this resource are teachers' notes and student sheets relating to the following experiments:

- acids and bases
- reactions of metals with acids
- displacement reactions
- making and using a conductivity meter

This overview outlines some of the reasons why these resources may be suitable for students with special educational needs and suggests additional possible adaptations.

Please note that we do not recommend that Microscale Chemistry is always used for experiments. It is presented as an alternative that may be particularly suitable for some groups of students. Sometimes a large scale experiment provides a more meaningful learning experience and should be used.

## OHT/clear plastic sheet experiments

### Suitability

- The small quantities involved and the limited equipment requirements means that it is possible to do these experiments in a variety of environments (including hospital schools and outside a laboratory).
- The limited quantities used minimises safety risks.
- There is a strong correlation between the layout of chemicals on the sheet and the observations that the students will record (some students experience difficulties in knowing where to record the results when converting what they see in a rack of test tubes onto a results table).
- There is a strong link between the "table" of reacting chemicals and the concept of periodic trends and reactivity.

### Considerations and further possible adaptations

- Student sheets could be enlarged to assist those who may have difficulties reading small print and to enable those who have poor motor skills to do the experiment.
- The teacher or class could do a set of results on a plastic sheet on the OHT so that the results could be observed and discussed as a group. (Care needed with chemicals on the OHT).
- A digital video camera could be used to record the results for one group (as the solutions and chemicals are added) enabling them to recap and reinforce the results in a future lesson or display it as a monitor.
- A digital camera could be used to capture an image of the results, minimising the writing required for some students and also creating a record of the students' results/achievements.

## Conductivity meter

This could be made by a teacher to provide a simple and useful resource that could support class activity to test the conductivity of different materials and solutions.

### Suitability

- Its size, shape and ease of use reduces the problems associated with student constructed circuits.
- Some students may enjoy the challenge of making practically useful equipment ñ after all, there is little writing involved and they can see what they have achieved at the end.

### Considerations and further possible adaptations

- Teachers must ensure that the students associate the lighting of the LED with the material conducting electricity. Teachers may construct a more explicit version of the circuit before introducing the conductivity meter.
- Though easy to make, teachers should only consider getting the students to make their own conductivity meter if they are suited to such an activity. Crocodile clips could be used as an alternative to soldering joints.
- As with all electrical experiments, weak connections could lead to inconsistent results and add to students' confusion.