

# Using a microscale conductivity meter

## Topic

Solutions – conductivity, ions. Metals – conducting electricity.

## Timing

15 min.

## Description

In this experiment students use the conductivity meter to test the conductivity of solids (eg metals) or solutions. The test is very easy to do and virtually any material can be examined. Students will need to be careful about cross-contamination when testing solutions.

## Apparatus (per group)

- One clear plastic sheet (eg ohp sheet)
- Conductivity meter (see 'Apparatus and techniques for microscale chemistry' handout.).

## Chemicals (per group)

- Copper(II) sulphate solution
- Sodium chloride solution
- Tap water
- Deionised water
- Sugar solution
- Copper foil
- Aluminium foil
- Iron nail
- Pencil lead.

## Observations

Metals and solutions/liquids that contain ions should cause the light emitting diode (LED) to shine. This experiment provides a quick and simple method for testing conductivity. The LED will light for any substance – whether liquid or solid – that conducts.

## Health & Safety

Students must wear suitable eye protection (Splash resistant goggles to BS EN166 3).

Copper(II) sulphate solution,  $\text{CuSO}_4$  (aq) causes eye damage (above  $0.12 \text{ mol dm}^{-3}$ ), is harmful if swallowed and HAZARDOUS to the aquatic environment.



## Credits

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*Health & safety checked May 2018*

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