# Using a microscale conductivity meter — teacher notes

## Topic

Solutions – conductivity, ions.

Metals – conducting electricity.

## Timing

15 minutes

## 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

* Clear plastic sheet (*eg* OHP sheet)
* Conductivity meter

## Chemicals

* Copper(II) sulfate 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 and technical notes

* Read our standard health and safety guidance here https://rsc.li/3LNbkfo
* Students must wear suitable eye protection (Splash resistant goggles to BS EN166 3).
* Copper(II) sulphate solution, CuSO4 (aq) causes eye damage (above 0.12 mol dm-1), is harmful if swallowed and HAZARDOUS to the aquatic environment (see CLEAPSS Hazcard [HC027c](https://science.cleapss.org.uk/Resource-Info/HC027c-Copper-salts-sulfates-VI.aspx)).