# Testing acids and bases on a microscale – student sheet

In this experiment, you will be testing various substances with indicator solution and looking for colour changes.

## Instructions

1. Place a clear plastic sheet over the table on your worksheet.
2. Put two drops of each solution in the appropriate box on the plastic sheet.
3. Add one drop of full-range indicator to each solution.
4. What conclusions can you draw from your observations?

## Table

|  |  |
| --- | --- |
| Hydrochloric acid |  |
| Sodium hydroxide |  |
| Vinegar |  |
| Sodium carbonate |  |
| Ammonia |  |
| Nitric acid |  |
| Bleach |  |
| Lemon juice |  |
| Sulfuric acid |  |
| Soap solution |  |

## Health, safety and technical notes

1. [Read our standard health and safety guidance.](https://edu.rsc.org/resources/explaining-our-health-and-safety-guidance/1752.article)
2. Wear eye protection throughout (splash-resistant goggles to BS EN166 3).
3. Hydrochloric acid, HCl(aq), 1 mol dm–3is low hazard.
4. Nitric acid, HNO3(aq), dilute 1 mol dm–3 is CORROSIVE.
5. Sulfuric acid, H2SO4(aq), 1 mol dm–3is an IRRITANT.
6. Sodium hydroxide solution, NaOH(aq), 1 mol dm–3 is CORROSIVE.
7. Sodium carbonate, Na2CO3.10H2O, 0.5 mol dm–3 is low hazard.
8. Vinegar, lemon juice and soap solution are all of low hazard.
9. Ammonia solution, NH3(aq), 1 mol dm–3 is an IRRITANT.
10. A 1:1 dilution of bleach is an irritant and if mixed with acid can release toxic chlorine.
11. A 1:1 solution of universal indicator is (probably) flammable (depending on the formulation). Keep away from sources of ignition.
12. Full-range indicator is a solution in propanol (or methylated spirits) which has a low surface tension and spreads out if used neat. Adding water increases the surface tension while still keeping the indicator in solution.