

1. Acids and bases

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

Instructions

PUT YOUR SAFETY GOGGLES ON FOR THIS EXPERIMENT.

Place transparent plastic sheet over the worksheet.

Put two drops of each substance in the appropriate box. Add one drop of full-range indicator to each. What conclusions can you draw?

Hydrochloric acid	
Sodium hydroxide	
Vinegar	
Sodium carbonate	
Ammonia	
Nitric acid	
Bleach	
Lemon juice	
Sulphuric acid	
Soap solution	

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Topic

Acids and bases, indicators.

Level

Primary and early secondary.

Timing

15 min.

Apparatus (per group)

- ▼ One student worksheet
- ▼ One transparent plastic sheet
- ▼ Plastic pipettes.

Chemicals (per group)

- ▼ Solutions contained in plastic pipettes
- ▼ Sodium hydroxide 1 mol dm⁻³
- ▼ Hydrochloric acid 1 mol dm⁻³
- ▼ Sulphuric acid 1 mol dm⁻³
- ▼ Nitric acid 1 mol dm⁻³
- ▼ Sodium carbonate 0.5 mol dm⁻³
- ▼ Ammonia solution 1 mol dm⁻³
- ▼ Vinegar
- ▼ Lemon juice
- ▼ Household bleach (diluted 1:1 with water)
- ▼ Soap solution
- ▼ Full-range indicator solution (diluted 1:1 with deionised water)

(Full-range indicator is a solution in propanol 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.)

Safety

Students must wear eye protection.

It is the responsibility of the teacher to carry out a risk assessment.