

Everyday experimenting for secondary schools: Exploring acids and bases at home!



You might be surprised, but loads of the household chemicals we use every day are either **acids** or **bases**. We can find out if something is an acid or a base by using an **indicator**. You might have come across some indicators in school e.g. litmus, but you can easily make your own indicator at home using **red cabbage!** We can measure how acidic or basic a substance is by using the **pH scale**. It goes from 0 to 14 (0 is very acidic, 14 very basic and 7 is neutral).

What you need

- Half a red cabbage
- Around 200ml of water
- Chopping board and knife
- A blender (if you have one)!
- A sieve or coffee filter
- Various household chemicals to test (try vinegar, baking soda, lemon juice, bleach, soft drinks (clear ones work best), antacid tablets, soap, sugar, salt, washing powder etc)

Safety first!

Be careful when using the knife to chop the cabbage and if using the blender. Use gloves and safety goggles when handling the chemicals. Also make sure to follow any safety warnings labels on the household chemicals.

Making the indicator

1. Chop up half a red cabbage in to small pieces
2. Add the cabbage and water to a blender
3. Blitz for a few seconds
4. Sieve the mixture to remove any bit bits.
5. Voila! You have your indicator mixture – it should look purple!



Using the indicator

1. Add around 100ml of the household chemical to a clear glass or plastic container (any solid materials should be dissolved in water first)
2. Add around 10ml of your indicator solution.
3. Look for a colour change.
4. The chart below will indicate how strong an acid or base the substance is or if it is neutral!

Red Cabbage Color changes with pH

