

Jane had created a colour chart for the red cabbage indicator made by her teacher. She then added the indicator to a range of household substances in order to find out whether each was an acid or a base.

Approximate Colour Chart for Red Cabbage (pH of substance shown)														
Strong acids		Weak acids				Neutral	Weak bases				Strong bases			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Red		Pink		Purple		Blue		Blue/Green		Green		Yellow		

### Fact File











Indicators help us find out whether a substance is acidic, basic or neutral.

Natural indicators can be made from red cabbage, blackcurrant and beetroot.

A good indicator will have lots of obvious colour changes.

pH is a measure of how strong an acid or base is.

The pH scale starts at 1 (strong acid) and goes up to 14 (strong base). Neutral substances are pH7.

Colour of red cabbage indicator in household substances				
Vinegar  Purple	Sugar solution  Blue	Limewater  Blue/Green	Water  Blue	Oven cleaner  Yellow
Toothpaste  Blue	Bleach  Green	Lemon Juice  Pink	Ammonia  Green	Wine  Purple

### Tasks

1. Make a copy of the colour chart for red cabbage indicator. Colour each box as shown
2. Draw a table showing the approximate pH of the ten household substances tested. You should also suggest whether each is an acid or a base. *For example, vinegar turns the red cabbage indicator purple, so it must have a pH of 5 or 6. It is therefore a weak acid.* Some substances could be from two categories.

Substance	Colour	pH	Acid/Base
Vinegar	Purple	5-6	Weak acid

3. What are the limitations of using red cabbage as an indicator? What would a better indicator also do?
4. Find out the names of some other indicators and design a chart to show their colour changes.

### Key Words

Indicator. PH. Acid. Base.

### ☑ Checklist for this activity

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|---|---|
| <input type="checkbox"/> Work on the sheet  | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 |
| <input type="checkbox"/> Write full answers | <input type="checkbox"/> Copy the <i>Fact File</i>  |
| <input type="checkbox"/> Copy the diagrams  | <input type="checkbox"/> Add your own research  |