

Turmeric Indicator

On SCOPE's Acids and Bases episode, Oscar made an acid/base indicator using turmeric. Here's how you can try it at home!



What you need:

- Turmeric
- Water
- A glass (to mix the turmeric solution in)
- Acid/base testing solutions (e.g. lemon juice, milk, bicarb, laundry detergent)
- Bowls (to mix the turmeric solution and acids/bases together)
- Spoons

What to do:

1. Put 8 heaped teaspoons of turmeric into the glass.
2. Add about 2 cups of water to the glass.
3. Mix the turmeric solution.
4. Set out bowls to experiment with. Use as many bowls as you have acid/base testing solutions.
5. Pour $\frac{1}{4}$ cup of your indicator mix into each bowl.
6. Add to each bowl a small amount of an acid/base testing solution.



*What happens to the colour of each mixture?
Which mixtures turn the same colour?*

7. Try experimenting with other natural indicators like blackcurrant juice, rose petals or tea.

What's happening:

When Oscar tried this at home, the indicator stayed yellow when the lemon juice and milk were added to it, but it turned red with the bicarb of soda and the laundry detergent. That's because turmeric contains a yellow pigment called curcumin, which is pH sensitive. Its molecules change shape in solutions of different pH. They are yellow in solutions that are acidic, like lemon juice and milk, but they turn dark red in solutions that are basic like bicarb of soda and laundry detergent.

