

AN EXPERIMENT ABOUT CHEMISTRY

MAKE IT NEUTRAL

What you will need:

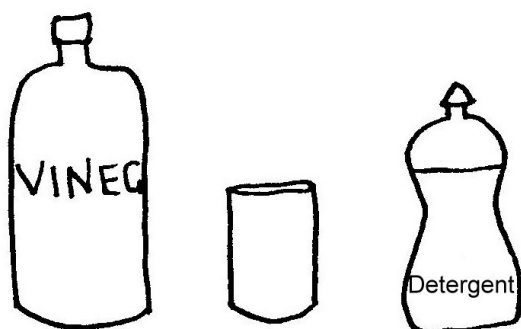
- A jar
- Vinegar
- Detergent
- A stirrer e.g. a pop stick
- Ready made indicator strips (see experiment Chemistry C01)

What you will do:

- 1 Pour some vinegar into the jar and then test it with the indicator strip. What happens to the strip.
- 2 Add a little detergent, stir it and test it again with a new indicator strip. Has the test result changed?
- 3 Keep going, adding a little more detergent at a time, stirring and retesting until the indicator strip doesn't change when you use it. That

means that the liquid is now neutral – neither acid nor basic or alkali.

4 If your strip changes to a different colour when you test is, you have gone too far and added too much detergent. Add a little more vinegar and try again.



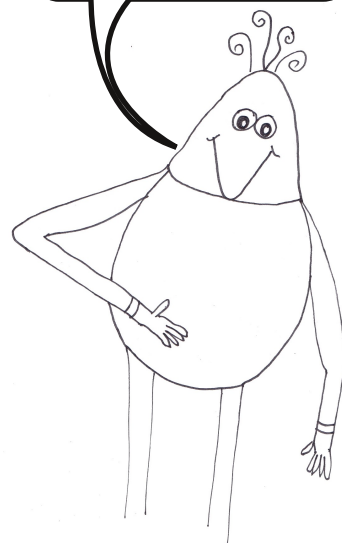
What is going on?

Vinegar is an acid and detergent is a base or alkali. Acids and bases are opposites, just like hot and cold. If you mix hot and cold water you get warm water – half way between hot and cold. If you mix acidic liquids with basic liquids, you can eventually get a neutral liquid, one that is neither acidic nor basic.

Monster Challenges:

- How would this help if there was a truck accident for example and there was a spill of an acidic or basic solution? Research to find an example.
- What other 2 solutions could you mix to make a neutral liquid?

Can you change the acidity of a liquid?



TEACHING NOTES:

Monster Sciences Science Experiment: Chemistry CH02

Topic: Chemistry

Suitable for Ages: 6 -12+

Key Concepts:

Acids and bases

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Chemistry CH02– one copy per student
- A jar, vinegar, detergent, pop sticks, indicator strips (see experiment Chemistry CH01)

Lesson Notes:

Ask your students to bring in liquids from home to test. You can use the Monster Sciences Supply Request form: www.monstersciences/science/pdfs/supply-request.pdf.

Remind students not to add too much of either liquid at a time or your solution will keep swapping from acid to base.

Remember, the indicator strips will be blue to start, they will turn red when the liquid is acid, greeny blue when it is basic, and won't change colour when the liquid is neutral.

As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

What should happen in this experiment, and why?

As the vinegar and detergent are mixed, they will neutralise each other – the basic detergent will make the vinegar less acidic. By carefully adding, mixing and testing it should be possible for students to make a liquid that is neutral – neither acidic nor basic.

Follow up discussion questions:

- Could you do this with any acidic and basic liquids?