

Wash in style

Part 1: What is in a shampoo?

Name

Complete the table using the Cosmetic ingredients database and the ingredients list from the shampoos in your group.

Shampoo name	Surfactant	Preservative	Emulsifier	Salt	Thickener	Perfume

Questions

1. What differences in ingredients are there between different shampoos?
2. Why do shampoos have so many different ingredients?
3. Why might it be important to use a shampoo that matches your hair type?

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Part 2: How do shampoos work?

You are going to test shampoos to find out how they work.

Make sure the same shampoo is tested at least twice in your group, so you get a reliable result.

The pH test	The 'cleaning' test
For each shampoo: <ol style="list-style-type: none">Put one drop of the shampoo in a test-tube.Add water so the tube is about $\frac{3}{4}$ full.Add two drops of Universal indicator solution.Shake the tube gently to mix.Read the colour on the chart and record the pH in the results table.	For each shampoo: <ol style="list-style-type: none">Put a Petri dish on the square of dark paper.Put oil in the dish to cover the base.Place one drop of shampoo in the centre of the oil.Watch as the drop spreads out.When the drop does not spread out any more, measure the diameter of the shampoo drop.Write down the diameter in the results table.

Results table

Shampoo name	Price / £ per 100 cm ³	pH Test result	Cleaning test result / mm	Comments

Questions

- What do you notice about the pH test results? What type of substances are shampoos?
- What do you notice about the cleaning test results?
- Which ingredients give the shampoos their properties?
- What differences are there between shampoo types, eg for greasy, coloured, dry hair?
- Is it worth buying expensive shampoos? Explain your answer.

Extension questions

1. How does a shampoo 'react' with dirt and grease when you use it?
2. Look at the oil test to find the best shampoo for dissolving grease.
3. What did people use to wash their hair before shampoo was invented?