



Magic Milk

Milk isn't just a delicious, nutritious drink... it's also perfect for this colourful "Magic Milk" experiment! Observe the changes that dish soap can make to the molecular make-up of milk!

Materials

- 🚀 Plate or flat dish
- 🚀 Full cream milk
- 🚀 Food dye (a few colours)
- 🚀 Dish soap
- 🚀 Cotton bud



Method

Step 1: Pour the milk onto the plate until mostly covered

Step 2: Drop 3-4 drops of each coloured food dye on the milk

Step 3: Coat your cotton bud with dish soap and gently touch the surface of the milk.

What is happening? The Science explained.

Milk is a complex mixture comprising water, vitamins, minerals, proteins, and non-polar fat molecules suspended in solution. When a drop of dish soap is added to milk with food colouring, the soap molecules rush to surround and bond with the fat molecules in the milk. This process creates structures called micelles, with a hydrophilic (water-attracting) head and a hydrophobic (water-repelling) tail. The hydrophobic tails of the micelles latch onto the fat molecules, while the hydrophilic heads interact with the surrounding water. This action causes the fat and food colouring to be pushed and dispersed in mesmerizing patterns, showcasing the principles of surface tension, molecular bonding, and the behaviour of polar and non-polar substances in a visually captivating way. *Stop & Think: What would happen if you use skim milk or water instead of full cream milk?*

