The Science of Scent

KS3-4 duration: 1 hour

Students look at molecular structure and the ancient mixture of science, art and psychology that is perfumery, to consider how we detect scents, what makes things smell and if perfume can really make us more attractive!

Key Words

Learning objectives
Recognise the importance of sense of smell as a biological function - and the extravagant claims made by the perfume industry
Understand that molecules are made of atoms that can only bond in particular ways to make a variety of chemical structures
Recognise how we smell molecules and the pathway by which these messages are interpreted by our brain
Identify that even very small differences in molecular structure can result in distinctly different smells
Recognise that perfumes are usually a complex mixture of many different odorants (smelly molecules)
Understand that body heat causes liquid scents to evaporate, that the rate of evaporation varies with molecular mass and that as a result the smell of a perfume changes over time – from top note to mid note to base note

Content
Describe how sense of smell can be useful to living organisms
Use Molymod to build molecules, recognising which structures are possible and impossible based on bonding
Describe molecules as being in constant motion, allowing them to evaporate and diffuse
Build complex molecules and relate differences in odour to visible differences in 3D structure
See how smaller molecules evaporate faster than larger molecules, leading to changes in the smell of a perfume over time
Smell a range of perfume ingredients and identify a combination of these smells in commercial products
Use the Fragrance Wheel to identify bespoke terminology to describe scents found in two popular perfumes

Curriculum Links
Biology
The role of diffusion in the movement of materials in and between cells

Chemistry
The properties of the different states of matter in terms of the particle model
Differences between atoms, elements and compounds
Chemical symbols and formulae for elements and compounds
The varying physical and chemical properties of different elements

Potential Hazards and accessibility
Students will smell sample scents and perfumes, some of which are concentrated essential oils. Scents will not be applied directly to the skin.

Contact us: 0117 915 7777 education@wetheruquirs.org Booking line opening hours: Mon- Fri 8.30am- 5pm term time and 10am- 2pm during school holidays