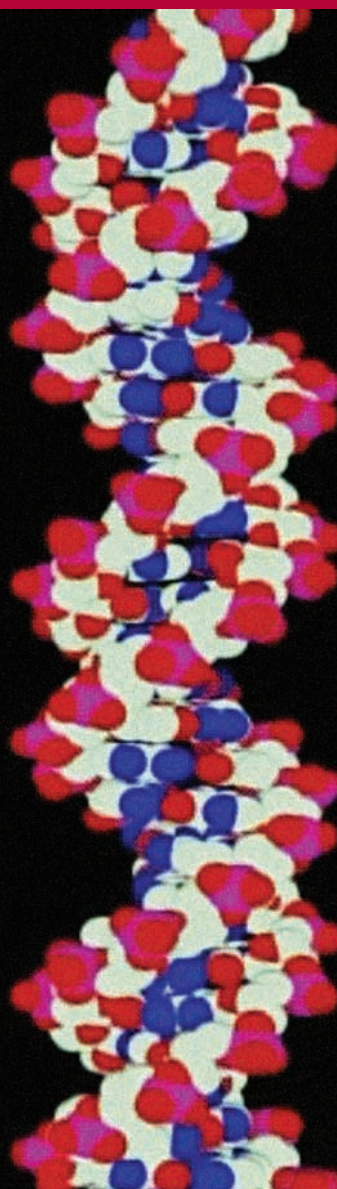
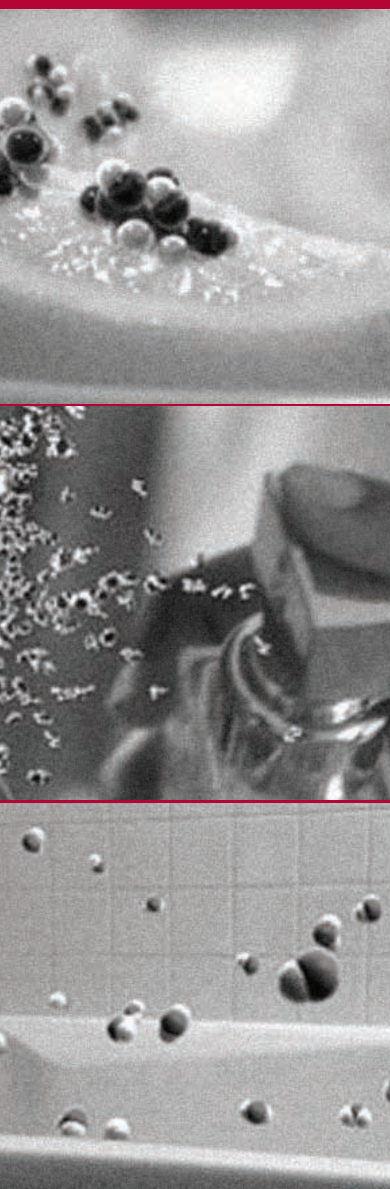




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Small Matters



Molecular science for a new generation

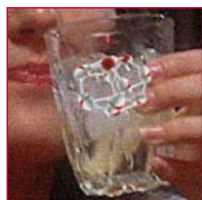
Producer: Cristina De Matteis - 3 x 5 minutes

What happens, chemically speaking, when a group of friends get together for a night out on the town? What molecules are present and how do they interact and affect the human body throughout the course of the evening?



Molecules magnified

Wool and silk couldn't feel more different: wool is spiky and springy, whereas silk is smooth and less elastic. Wool and silk are natural polymer fibres obtained from animals. Each is made up of fine threads, hundreds of times longer than they are thick. Both wool and silk are made up of proteins called keratins. Wool contains alpha-keratin which folds into coiled, helix type structures, whilst silk is made up of beta-keratin, which folds backwards and forwards into flat sheet-type structures. Nylon is a synthetic fibre. It's a polymer that feels smooth like silk but is wholly man-made in its creation.



How molecules interact

Atoms are the building blocks of chemistry. Each atom contains charged particles (electrons and protons) which give it an electronic charge. How many electrons and protons there are in an atom determines how strong the charge is, and what that atom can bond with. Atoms with a positive charge will be attracted to negatively charged atoms to form a molecule. This bonding between atoms is the key to how molecules interact with each other. The positioning of atoms in a molecule may give it polarity. If two positively charged atoms are near each other in a molecule, that area may carry a slight positive charge, while elsewhere the charge may be slightly negative. An example of this is water.



How molecules affect us

Chemicals affect us in different ways. Some, such as adrenaline and testosterone, are hormones produced by our own bodies and control our physiological responses. Other molecules we are often exposed to come from outside our bodies. Some, such as perfumes, which are often in the air we breathe, smell delightful and react with olfactory receptors in the nose. Some are drugs and make us feel good but can have adverse effects on our bodies - such as alcohol, caffeine in coffee and nicotine in cigarettes.

Producer: Cristina De Matteis

3 x 5 minutes



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