

Chemistry and Stuff Around Us

Stuff We Use



You're walking on chemicals. Your favorite **sneakers** have soles—and probably other parts—made of plastic. Many **soda bottles**, your **computer mouse**, and even some of the **clothes** you wear are made of or have plastic in them. Plastics are polymers made by chemical processes. Polymers are molecules that link together like beads. Each molecule has carbon, hydrogen, oxygen, and/or silicon atoms.



"Ouch! I got a sunburn." The chemical ingredients in some **sunscreens**, titanium dioxide and zinc oxide, protect your skin from the sun's ultraviolet (UV) radiation. They do this by reflecting and scattering UV light. Other types of chemicals in sunscreen absorb UV light and disperse it as heat.



Did you know that when you use shampoo, your hair gets wetter? That's because water has surface tension (the molecules stick together). The chemicals in **shampoo** (or any soap) break the surface tension so water soaks more easily into hair.

Percy Julian

Percy Julian extracted oils, proteins, and other compounds from soybeans, which were used to make latex paints, coatings for paper, glue, plastics, and even some foods.



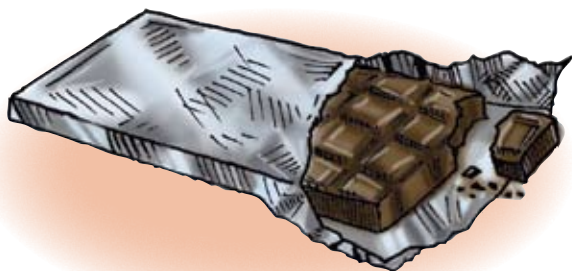
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Stuff We Eat



Root beer was made in Colonial America. An extract made from a variety of natural ingredients (such as sassafras root, wild cherry bark, allspice, etc.) is added to sugar and boiling water. The flavored sugar water is cooled and yeast is added to begin the chemical process of fermentation—breaking down sugar and giving off carbon dioxide. The root beer is ready in 12–24 hours.

Chocolate is made from cocoa beans. The chemical lecithin, an oily material first extracted from soybeans in Percy Julian's laboratory, is often added to chocolate to make it smooth.



To make **yogurt**, helpful bacteria are added to milk. The bacteria break down the sugar in the milk in a chemical process that makes the milk thicken and become yogurt.



Many foods in grocery stores contain the chemical **preservatives** calcium propionate, BHA (butylated hydroxyanisole), and sodium nitrite. Calcium propionate kills molds and bacteria so they don't grow on foods such as pizza crust, pudding, milk, and jam. BHA preserves fat and is found in butter, processed meat, and chewing gum. Sodium nitrite inhibits the growth of harmful bacteria.