



FOOD



The Chemistry of some things you may not have thought of...

Cooking - Cooking is probably the first chemical process invented by humans. Kitchen Chemistry has been well publicised in the national press recently with the advent of Molecular Gastronomy – used by the chef Heston Blumenthal who's restaurant has recently been voted the best restaurant in the world by Restaurant Magazine. A book 'Kitchen Chemistry' has been produced in a project between Heston Blumenthal and the RSC which is now available to buy and includes many useful experiments related to Kitchen Chemistry.

<http://discoverychannel.co.in/kitchen/>

<http://www.rsc.org/AboutUs/News/RSCnews/KitchenChemistry.asp>

Ice-cream – It would not be an exaggeration to suggest that ice cream is one of the most complex materials known to man. This familiar treat is, to the scientist, a composite of solid ice and fat particles as well as air bubbles suspended in a viscous solution of sugars, lipids and proteins. Recently at the launch of the RSC's 'Kitchen Chemistry' book the world record for ice cream making was set at 18.78 seconds.

http://www.rsc.org/chemistryworld/restricted/2005/may/ice_cream.asp

<http://www.rsc.org/chemistryworld/news/2005/june/22june2005worldsfastesticecream.asp>

Cinema snacks – The secret to maximising the pop-ability of popcorn lies in the chemistry of the corn kernel. This kernel consists of a water droplet, stored in starch, enveloped by a pericarp and it is the characteristic chemical structure of this component that determines its pop-ability. For further details see

http://www.rsc.org/chemistryworld/issues/2005/june/chem_sci/cinema_snacks.asp

Champagne – Chemistry is used in the fermentation process of Champagne production and the bubbles present enable the alcohol to reach the blood stream quicker leading to that feeling of light headedness often felt when drinking champagne. It has been shown that a greater amount of alcohol reaches your blood from fizzy champagne as opposed to flat.

<http://news.bbc.co.uk/1/hi/health/1719780.stm>

Storage - A surprising amount of food packaging has been developed using chemical properties in order to increase consumer convenience and product safety.

- The development of squeeze ketchup bottles using smart plastic technology which makes the bottles impermeable to oxygen has provided a much needed alternative to the heavy glass bottles with their 'unique' pouring abilities.
- Clingfilm helps to prevent contamination and the spread of germs
- Plastic containers and packaging are more flexible, cost effective, tough and easy to shape. They can be transparent and food packaged in this way will last longer and is less likely to be bruised or damaged.
- Baby bottles... modern plastics have streamlined the bottles making them unbreakable and temper resistant!

For more details and ideas please see

<http://www.cefic.org/Templates/shwNewsFull.asp?HID=1&NSID=562>

Other things to think about:

Beer - <http://www.rsc.org/publishing/books/0854046305.asp>

Chocolate - <http://www.rsc.org/publishing/books/0854046003.asp>



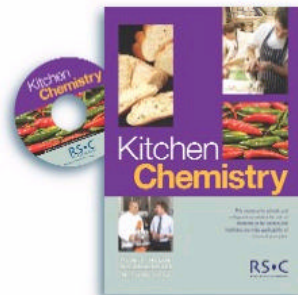
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Useful RSC resources

Kitchen Chemistry

The RSC Education department has collaborated with renowned exponent of 'molecular gastronomy', chef Heston Blumenthal, to produce an educational resource for teachers and students. Kitchen Chemistry comprises teacher's notes and student material and a CD-ROM packed with information and links to video clips featuring Blumenthal in the Discovery Channel TV series "Kitchen Chemistry".



For further information about ordering this resource please visit the web site:

<http://www.chemsoc.org/networks/learnnet/kitchenchemistry/>

Contemporary Chemistry for Schools and College



An excellent resource comprising of a book and a CD-ROM which contain useful information about the chemistry of food. 2 subject areas covered include:

Chemistry and diet – focuses on the chemistry of fat in your diet. Provides ideas for experiments such as cooking the perfect chip and using iodine to test for saturation in fats.

Vitamins – All about vitamin C and its role in the prevention of colds. Simple experiments are described including one testing the amount of vitamin C in a range of fruit juices.

For information about ordering this resource please visit the web site:

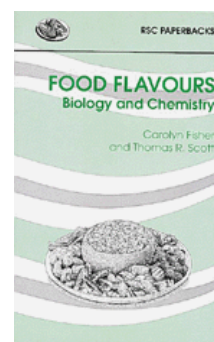
<http://www.rsc.org/publishing/books/0854043829.asp>

Food Flavours: Biology and Chemistry

How does the nose know what it smells? How do we taste foods? What gives foods their characteristic flavours? How do the methods of food preparation and processing change the flavours of foods? Food Flavours answers these questions and much more, in a clear and understandable manner, describing the composition of flavour compounds and the contributions they make to our sensory experiences.

To order this publication and to view selected sections visit:

<http://www.chemsoc.org/networks/learnnet/foodflav.htm>



Other useful RSC publications which contain details of experiments involving food can be found in the books Classic Chemistry Experiments and In Search of more solutions both of which can be ordered via our web site www.rsc.org

Examples of material from these publications can be found in the following pages.