

EDUCATION

An Eyeful of Chemistry

Virtual Chemistry, a catchy site from Oxford University, uses everything from animated

flights across the surface of a protein to video of various substances going up in flames to explain chemical reactions, structures, and techniques. Seven interactive experiments step through topics such as the synthesis of superconductors and the organization of inorganic solids such as potassium (above). Like a good teacher, some lessons stop to pose questions and won't let you continue until you've gotten the right answer.

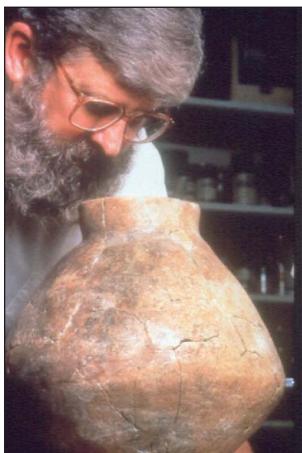
The site also screens a film festival's worth of movies. Settle in to watch 18 reactions that are often demonstrated by lecturers, along with some longer films that zoom through crystals and probe atomic orbitals. You can also bone up with tutorials on infrared and Raman spectroscopy, reaction mechanisms, and the synthesis of ketones.

neon.chem.ox.ac.uk/vrchemistry

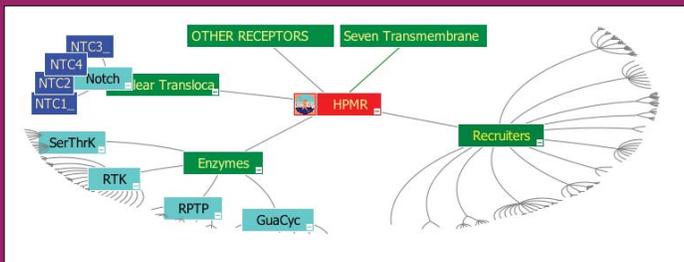
EXHIBIT

Uncorking Ancient Vintages

Imbibe the heady history of winemaking at this Web exhibit from the University of Pennsylvania's Museum of Archaeology and Anthropology. Patrick McGovern (below), an archaeologist at the museum, and colleagues detected the oldest-known chemical signature of wine in this roughly 7000-year-old jar unearthed at Hajji Firuz Tepe, a dig in the Zagros Mountains of Iran. Researchers don't know if early vintners were serving up a lush, elegant red or a cheeky white, but enthusiasm for wine flowed across the region. The ancient Egyptians provisioned their tombs with wine for the afterlife, and inscriptions on pottery show Mesopotamian royalty partying hearty with beer and what appears to be wine. McGovern plans to upgrade the 3-year-old site this fall by mixing in archaeological tidbits about other vintage winemaking areas, such as eastern Turkey and the Caucasus.



www.museum.upenn.edu/new/exhibits/online_exhibits/wine/wineintro.html



DATABASE

How Cells Get the Message

Without receptor molecules on its surface to capture chemical signals, a cell would be as clueless as a teenager without a mobile phone. These communiqués spur cells to grow, divide, and soak up sugar, among other functions. The Human Plasma Membrane Receptome database from the lab of Aaron Hsueh at Stanford University profiles more than 1000 receptors that stud the membranes of our cells. You can search by nucleotide sequence or receptor family or navigate a "concept map" (above) that organizes receptor classes by function. The site provides each receptor's nucleotide sequence, results from microarray analyses of gene activity, links to other protein databases, and recent PubMed citations.

receptome.stanford.edu/HPMR

RESOURCES

Following the Money for Cancer Research

Cancer researchers can track down possible collaborators or pinpoint promising areas for future studies by logging on to the International Cancer Research Portfolio, a clearinghouse of grants awarded in the United States and the United Kingdom. The new site lists some 13,000 grants from 17 underwriters of cancer studies, including government agencies such as the U.S. National Cancer Institute and charities such as Cancer Research UK. The listings use a common vocabulary and format to make searching easier. You can scan the database by scientist, type of cancer, general area of research (prevention, treatment, and so on), or funding agency. Entries provide the affiliation of the principal investigator and an abstract of the proposed work.

www.cancerportfolio.org

DATABASE

Meet the Nuclear Family

Everyone has heard of carbon-12, the most abundant form of the element, and carbon-14, the isotope used to date artifacts and bones. But the carbon clan contains 13 other isotopes, from the scrawny carbon-8 to the mammoth carbon-22. Nuclear physicists and radiochemists who need data on these or other isotopes should try this handy Table of Nuclides hosted by the Brookhaven National Laboratory in New York, which characterizes isotopes for 111 elements. Whether you're interested in the common, long-lasting forms or the varieties that exist only briefly inside colliders, you can dig up data such as atomic mass, binding energy, abundance in nature, half-life, and type of decay.

www2.bnl.gov/ton

Send site suggestions to netwatch@aaas.org. Archive: www.sciencemag.org/netwatch

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