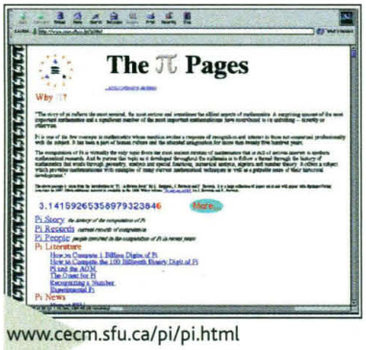
SITE VISIT

Pieces of Pi

Any way you slice it, pi is a cool number. It's irrational, so its digits go on forever with no repeating pattern, inspiring some geeky fun. The current record holder for the most pi memorized is Hiroyuki Goto, who recited 42,000 digits in something like 9 hours. Yet there's a serious side, too—heroic computations of the digits of pi on supercomputers are revealing a great deal about number theory and how to do efficient calculations. Whether your interest is serious or silly, the Pi Pages at Simon Fraser University probably can help you find what you need to know about pi.



www.cecm.sfu.ca/pi/pi.html

The site offers links to current computational champions, info about how to compute lots of digits of pi quickly, and articles linked to computational software. There's even a Java applet that recites the digits of pi in any one of 22 languages and dialects, including Cockney and Dr. Seuss.

Visitors can join an Internet project called PiHex, where they download software that borrows little chunks of their desktop computer's time to figure out the *N*th digit of pi in hexadecimal (base-16) numbers. Participants then e-mail their pi pieces back. Right now, PiHex is working on the 250 trillionth digit. But why this fascination with computing pi? One reason is that it is one math concept almost everybody has heard of. "You can climb a lot of mountains much harder than Everest," says mathematician Jon Borwein, who oversees the Pi Pages, "but you'll never get your name in the papers."

NET NEWS

Internet Pioneers Defend Gore

Republicans made plenty of hay out of Vice President Al Gore's remark earlier this month to CNN interviewer Wolf Blitzer that he "took the initiative in creating the Internet." Just as quickly, however, the Internet's real founders have rallied to defend their longtime champion.

Gore's gaffe, aired on 9 March, inspired Senator Trent Lott (R–MS) to take credit for the paper clip, among other quips. Even House Science Committee chair James Sensenbrenner (R–WI) jumped into the fray, issuing a press release titled "Delusions of Grandeur" that said Gore's remark "gives new meaning to the term 'March Madness.' " As he and others pointed out, the Internet grew out of the Defense Department's ARPANet, launched in 1969 when Gore was 21.

Internet pioneers see things differently. Gore's claim "is hyperbolic, but there's a germ of truth there," says Stephen Wolff of Cisco Systems, who oversaw the National Science Foundation's NSFnet (the Internet's immediate precursor). Wolff recalls that in 1986 then-Senator Gore pushed through legislation requiring a White House study on whether telephone companies could create a national scale network. "It's what the Internet is now," he says.

A Gore spokesperson clarifies that Gore "was instrumental in helping create what today is known as the Internet," as "he's said 100 times. ... These guys know this."

HOT PICKS

On ice. Look up the first scribblings about the Southern Ocean by explorers in the 1600s, or peruse a flood of recent books and reports (until 1996) on Antarctica at this new online bibliography of 33,000 records. www.spri.cam.ac.uk/lib/spriant.htm

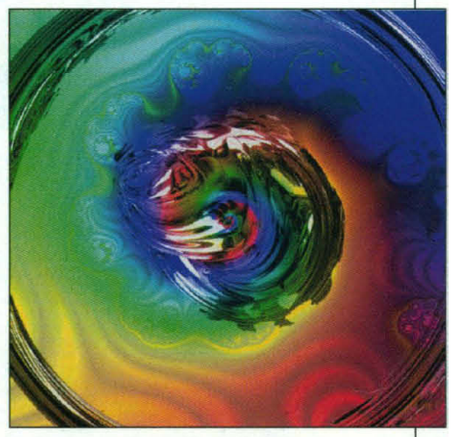
The bigger picture. The Web is loaded with banks of protein structures, but not images further up the size scale, like macromolecules and cells. To fill the gap, the European Union is developing a database of "multidimensional" biological images. Sign up for a guest pass to check out the project, which so far includes actin, protein crystals, and fluorescent protein expression images made with various microscopy techniques. The images come with data sets, references, and experimental details. www.bioimage.org

Virtual 101. Biology teachers and students will find a wealth of online tutorials and problem sets at this site covering everything from biochemistry to the cell cycle, Mendelian genetics, toxicology, and recombinant DNA. Aimed at college and high school students, the site includes virtual experiments on karyotyping and the effects of secondhand smoke on the lungs of mice. Portions are available in Spanish. www.biology.arizona.edu

No ordinary orrery. Hopscotch from planet to planet as other celestial bodies spin dizzyingly around you in this snazzy new 3D virtual solar system. Requires a fast PC and a plug-in. www.nationalgeographic.com/solarsystem

COOL IMAGES

Unorthodox Elements



If this image brings you back to the psychedelic '60s, that's because it's meant to represent Berkelium (Bk), discovered at the University of California, Berkeley, 50 years ago. The design reflects the radioactive metal's "ephemeral nature" and "has echoes of Berkeley circa 1969," when it was a hotbed of student radicalism, explains artist Murray Robinson. It's part of Visual Elements,* a new online periodic table that presents the 109 elements "in as unique and innovative a manner as possible," according to the site, created by the Royal Society of Chemistry. Nowhere to be found are lumps of grayish metals in a dish; instead, Robinson has come up with striking designs that often incorporate an element's history—for platinum, a piece of Mayan jewelry, for example. Also featured are "periodic landscapes," mystical-looking panoramas based on how elemental properties shift across the table. Itching to download them all? Then send away (by e-mail, of course) for a periodic table wall chart.

* www.chemsoc.org/viselements

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