

CAREER EXPLORATION *(continued)*

Career Ideas for Kids Who Like Computers (book)

With this quiz, your students can learn if their futures may lie in the high-tech world of computers. *Career Ideas for Kids Who Like Computers* gives the scoop on exciting careers including Artificial Intelligence, Computer Game Design, Computer Programming, Hardware Engineering, Multimedia and more.

www.careerideasforkids.com/computer.htm

CHALLENGES AND COMPETITIONS

Best Robots, Inc.

Boosting Engineering, Science, and Technology (BEST) is a national nonprofit organization that engages teams of middle and high school students in fun, high-energy engineering problem-solving competitions that involve designing and building remote-controlled robots.

www.bestinc.org

Discovery Youth Scientist Challenge

If you have a student who has won a local middle school science fair competition, that student is eligible to compete in the Discovery Young Scientist Challenge. This science contest is designed for students in grades 5–8. The Discovery education Web site provides all the information needed to participate.

school.discovery.com/sciencefaircentral/dysc

First Lego League (FLL)

FLL involves teams of 9–14 year old students in creating robots (using Lego Mindstorms technology) within a hands-on, minds-on, sport-like atmosphere. www.firstlegoleague.org

Intel International Science and Engineering Fair

The Intel International Science and Engineering Fair (ISEF) is the world's largest pre-college celebration of science. Held annually in May, the competition brings together nearly 1,500

GetTech

GetTech helps students, teachers and parents explore and plan for exciting careers in technology, engineering, manufacturing and science.

www.gettech.org/default2.asp

What Do You Like? Exploring Career Exploring Career Information

—Bureau of Labor Statistics, 2006–07 Edition. The BLS site lets kids scout out careers in every field—including technical ones.

students from more than 47 nations to compete for over \$4 million in scholarships, tuition grants, internships and scientific field trips. After winning in regional competitions, student computer scientists can compete in six categories, including Algorithms and Data Bases, Artificial Intelligence, Networking and Communications, Computational Science and Computer Graphics, Software Engineering and Programming Languages, and Computer Systems/Operating Systems. www.sciserv.org/isef

Robotic Technology and Engineering Challenge

From the Society of Manufacturing Engineers, this competition enhances students' understanding of manufacturing processes. Aimed at participants from middle school through college, the contest offers an innovative way for students to apply classroom knowledge to real world situations. www.nationalroboticschallenge.org

Sally Ride Science Toy Challenge

Inventing toys is a great way to learn about science, engineering and the design process. Accomplished teams that tackle the Toy Challenge might just win a weekend VIP tour of NASA's Kennedy Space Center in Florida!

www.toychallenge.com

Computing Resources for Educators

Gotta have IT



Resource List

The NCWIT K-12 Alliance has compiled a comprehensive list of resources to help you explore computing with your students, including activities to do this minute (virtual experiences on the Web), next week (robotics kits), next season (camps and clubs), and beyond (career exploration). Visit us at www.ncwit.org.



EXPLORE COMPUTING

Outreach-in-a-Box: Discovering IT

Here's how to invite a computing professional to your school! The National Center for Women & Information Technology offers *Outreach-in-a-Box: Discovering IT*, an outreach kit for computing professionals to use to introduce computing to middle school youth in a school program. The program includes a hands-on inquiry lesson—complete with a robotic car. Start by contacting the public affairs office at your nearest university or technology company and engage a computing professional. Next, introduce them to *Outreach-in-a-Box*, which makes the process easy. www.ncwit.org/outreach4kids

PROGRAMMING AND ROBOTICS

Alice v2.0

Developed by Carnegie Mellon University, the focus of the Alice project is to provide the best possible first exposure to programming. Geared toward students from middle school to college, Alice helps students explore programming through interactive 3D graphics. www.alice.org

Interactive Robotics

Presented by the Museum of Science in Boston, students dig into computing as they build virtual robots online. Requires Shockwave. www.mos.org/exhibits/robot/index.html

LEGO® Mindstorms™

Here's a fun way for students to design and program real robots! They can also create everything from a light-sensitive intruder alarm to a robotic rover that can follow a trail, move around obstacles, and even duck into dark corners. <http://mindstorms.lego.com/eng/products/ris/index.asp>

Linechaserz Cars

These toy cars use optical sensors to “chase” lines students draw. Teaches computing fundamentals, highlights how light emitting diodes and infrared emitter/detectors work together, and illustrates the rules that govern the car's

Computer Science Unplugged

The *Unplugged* books and companion Web videos provide a series of off-line activities designed to let people of all ages have fun exploring interesting ideas at the heart of computer science—without having to use a computer at all. Download a PDF from Google Education: www.google.com/educators/activities/unpluggedTeachersDec2006.pdf
Buy *Computer Science Unplugged* books: www.unplugged.canterbury.ac.nz

behavior. Order yours at Above Bored Toys and Gifts (www.aboveboredtoysandgifts.com) and follow the Activities Guide in *Outreach-in-a-Box: Discovering IT* (www.ncwit.org/practices/outreach) to explore computing functions with the Linechaserz car.

Pico Crickets and Super Crickets

Students can plug lights, motors and sensors into a Cricket, then write computer programs to tell it how to spin, light up, play music and move. They'll build little robots, animated rocking horses, automated gift boxes and other personal animated toys. These Web sites show where to get Crickets, and offer project ideas, lesson plans and more. Pico Crickets: www.picocricket.com/index.html
Super Crickets: <http://handyboard.com/cricket>

Scratch

Developed by MIT Media Lab in collaboration with the UCLA Graduate School of Education & Information Studies, this programmable toolkit enables kids to create games, animated stories and interactive art—all which they can share with others over the Internet. <http://weblogs.media.mit.edu/ilk/scratch/educators.html>

CREATIVE MEDIA AND COMPUTING

Basics of Web Design

Building their own Web pages is a great way for students to learn about computer technology. Help them learn HTML basics and create their own Web pages using the lesson set from Girls Inc. www.girlsinc.org/gc/page.php?id=3.4.11

Craft Magazine

Watch your students' amazement as they use silver-coated thread and a microprocessor to create a custom light-up tank top. They can embroider a skateboard, felt an iPod cocoon, stitch a robot, and much more. *Craft* is the first project-based magazine dedicated to the world of “out-there” and edgy crafts. Get do-it-yourself

advice from the magazine or on the *Craft* Web site. www.craftzine.com/magazine

Make Magazine

Make celebrates the right to tweak, hack and bend any technology to get a new result. Get tips, insights and advice from the articles or on the *Make* Web site. www.makezine.com

Switch

A do-it-yourself Web show that combines design, fashion and technology. Watch designers at work and check out lots of projects in the Learning Library. <http://iheartswitch.com>

CAMPS AND CLUBS

Computer Science Camps and Workshops

If all the technical camps offered each year were listed in this brochure it would be the size of a phone book. Visit NCWIT for a list of programs around the country. www.ncwit.org/outreach4kids

DigiGirلز High Technology Camps

Microsoft DigiGirلز camps introduce girls to the opportunities available in high-tech. During camp, girls meet technology executives and participate in technology tours and demonstrations, networking, and hands-on learning workshops. Free camps are held in seven regions across the U.S. www.microsoft.com/about/diversity/programs/camps.msp

CAREER EXPLORATION

University of Washington Outreach Videos

- *Power to Change the World* — First-person accounts of students, alumni and faculty explaining why they chose careers in computer science and engineering. Use the video to introduce computing as an exciting field full of opportunities.
- *Pathways in Computer Science* — This video illustrates the diverse professional pathways students can pursue after receiving a degree in computer science or computer engineering. Use the video to explore how a degree in computing prepares students for almost any imaginable future.

Future Scientists and Engineers of America (FSEA)

For kids who want to start their own tech club, this national nonprofit organization supports after-school technology clubs. www.fsea.org

Girls Go Tech

Girl Scouts of the USA offers camps and programs where girls can explore their interests in science, math and technology. www.girlsgotech.org

Sally Ride Science Camps

Science camps provide girls in grades 4–9 an opportunity to explore science, technology and engineering. They also experience life on a college campus. www.sallyridecamps.com

- *A Day in the Life* — Six brief profiles of recent computer science and engineering graduates show bright, young women engaged in secure, highly collaborative, creative, diverse, challenging and well-compensated work. These role models will resonate with young people who might not otherwise consider a career in computing.

All videos from *Why Choose CSE?* University of Washington, www.cs.washington.edu/WhyCSE.