Intel® STEM Education

Online Science, Technology, Engineering, and Math Resources for K-12 Educators

Free professional development and curricula to help transform today's students into tomorrow's innovators

Intel believes that young people are the key to solving global challenges, and a solid foundation in science, technology, engineering, and math (STEM) is crucial for their success. To help educators foster the next generation of innovators, Intel provides a wide array of STEM-centered online tools and resources—all designed to inspire better learning and greater discovery.

The available resources include free professional development for teachers around the world, and free curricula that has been shown to encourage student interest and participation in STEM-related subjects.

PROFESSIONAL DEVELOPMENT

Intel® Teach Program

The Intel® Teach Program is a proven, worldwide professional development program that helps educators improve instruction through 21st century approaches. The most successful educator professional development program of its kind, Intel Teach has been driving systemic change in teaching and learning since 2000, reaching more than 10 million teachers in 70 countries.

Intel Teach empowers teachers to engage students with digital learning and STEM-related content, including Web 2.0, social networking, and online tools and resources. Teachers gain the knowledge they need to integrate technology effectively into their existing curricula and focus on their students' problem-solving, critical-thinking, and collaboration skills—precisely the ones required in today's high-tech, networked society.

Intel® Teach Elements Program

Working with experts in online education and educational technology, Intel created Intel® Teach Elements—a series of interactive, multimedia courses designed specifically for online and blended use by educators. Intel Teach Elements course content has been aligned by participating states to support transition to the new Common Core.

Intel Teach Elements Courses Include:

Inquiry in the Science Classroom

This online course is designed for teachers of students in 3rd to 8th grades (ages 9 to 13), to demonstrate the inquiry process in depth with interactive activities and locally relevant classroom examples. The course builds a foundation for inquiry and covers the rationale and research basis, common misconceptions, and specific strategies for inquiry as part of any science learning, regardless of the specific discipline.

Thinking Critically with Data

This course examines critical thinking with a focus on data analysis. The material is designed to help teachers of all subjects prepare students to think analytically in our information-rich world.

In the course, teachers explore practical skills and strategies to draw on when teaching students to think critically about the information around them. Teachers also learn how to design student projects and assessments that address critical thinking skills when collecting and analyzing data, and they learn how technology can support student collection, organization, and presentation of data.

Additional Intel Teach Elements Courses

Intel Teach Elements courses relevant for K-12 teachers of all subjects include:

- Assessment in 21st Century Classrooms
- Collaboration in the Digital Classroom
- Project-Based Approaches
- Educational Leadership in the 21st Century
- Designing Blended Learning

ONLINE RESOURCES

Free tools and curricula, including Intel® Teach Elements courses, are available at **intel.com/teachers**

Intel® Educate Future Scientists

Intel® Educate Future Scientists helps science teachers present their curricula from an inquiry-based perspective to help foster the spirit of research and innovation among their students. This approach enables the teachers to guide students in the study of science and motivate them to excel in research-based science fairs. The curriculum consists of seven modules that may be delivered over 18 hours.

CURRICULA & RESOURCES

STEM Unit Plans

STEM Unit Plans are technology-rich units for K-12 teachers. The units use project-based approaches to support STEM curricula, and can be used as-is or as models for teachers' own planning.

Design and Discovery

Design and Discovery is an academic enrichment curriculum developed to build interest in engineering among students ages 11 to 15. Designed for extended learning outside the classroom, the curriculum includes hands-on engineering and design activities, as well as a teacher/facilitator guide.

PhET Unit Plans

The PhET* project offers interactive, research-based simulations of physical phenomena created at the University of Colorado. Intel's PhET unit plans provide opportunities for deeper investigation into the topics raised by the simulations.

Intel® International Science and Engineering Fair Middle School Curriculum

The Intel® International Science and Engineering Fair (Intel® ISEF), a program of Society for Science and the Public, is the world's largest international pre-college science competition. Intel ISEF Middle School Curriculum is designed to help teachers prepare students for a middle school science fair. Developed by teachers, the comprehensive curriculum includes a week-to-week guide for directing students in formal or informal educational settings.

Thinking Tools: Visual Ranking

The Visual Ranking Tool is an online tool that helps K-12 students learn to analyze and evaluate information. Students must apply critical thinking to identify and refine criteria and create ordered lists. The hands-on tool can be used within a lesson, and includes a workspace, instructional strategies, and math and science examples.

Thinking Tools: Showing Evidence

The Showing Evidence Tool is an online tool that helps students construct well-reasoned arguments supported by credible evidence. Designed for students ages 9 to 18, the tool includes a workspace, instructional strategies, and math and science examples.

Thinking Tools: Seeing Reason

The Seeing Reason Tool is an online tool that helps K-12 students analyze cause-and-effect relationships. Students can create visual maps of factors and relationships a cause-and-effect investigation. The tool includes a workspace, instructional strategies, and math and science examples.

CURRICULA & RESOURCES continued

Khan Academy Apps from the Intel AppUp® Center

Khan Academy videos help students learn what they want, when they want, at their own pace. About 10 minutes long each, the videos cover math, chemistry, and physics. These apps are optimized for PCs to make learning easier and more accessible.

It's a Wild Ride—A Roller Coaster Design Project

It's a Wild Ride incorporates physics, math, social studies, and writing into a 36-day in-school project that involves multiple classrooms. Designed for students ages 13 to 15, the project involves the design of a roller coaster, with strategies, lessons, and more provided for teachers.

skoool™ Education Technology

Available online in a variety of languages, skoool™ content provides multimedia learning resources in math and science for students ages 12 to 18. The skoool.com web site features interactive student simulations and materials for both teachers and parents.

SCIENCE COMPETITIONS

When our brightest minds compete, we all win. By sponsoring science competitions, Intel encourages the brightest young innovators and future industry leaders to be their best. In the U.S., the Intel Science Talent Search[1] attracts some of the brightest young minds in the country. And because brilliance knows no boundaries, the Intel International Science and Engineering Fair[1] draws participants from all over the world. These competitions are part of our commitment to science, technology, engineering, and math education aimed at strengthening problem-solving skills, providing greater opportunities for scholarships, and promoting stronger technology literacy and curriculum in our schools worldwide.

www.intel.com/education/ISEF
www.intel.com/education/STS

By investing in STEM professional development and curricula, Intel is helping transform the lives of millions and cultivate the innovators and visionaries who will lead us into a better future.

Intel works with countries, communities, and schools worldwide to advocate and support technology use in learning and discovery. By helping teachers and young people integrate technology into the learning process, we promote essential skills including digital literacy, critical thinking, and collaboration.

Accelerating access to innovative technology and ideas that bring quality education to more people everywhere—that's how we inspire a new generation of thinking and doing that creates more possibilities.

LEARN MORE
To access more information and STEM resources, visit
www.intel.com/education/STEM

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