

Mission

Computer Science Education Week (CSEdWeek), designated by the U.S. House of Representatives as the week of December 6-12, 2009, recognizes the transformative role of computing and the need to bolster computer science at all educational levels.

ACM (the Association for Computing Machinery) and its partners will promote CSEdWeek through its website to:

- Raise awareness of the critical role of computing for our global information society.
- Promote efforts to expose students – particularly in grades K-12 – to robust computer science education.
- Highlight the challenges facing computer science education.
- Engage supporters to prepare students with the knowledge and skills they need for the 21st century.

The Computer Science Education Week Website www.CSedweek.org

- Serves as the interactive and central resource hub for CSEdWeek.
- Contains computer science education resources:
 - Posters, brochures, and curriculum guides
 - Data and research
- Provides a social platform to share ideas and celebrate CSEdWeek at national and local levels:
 - Facebook, Twitter, YouTube, LinkedIn, and Flickr
- Draws attention to the need for an educational system that values computer science within the national science, technology, engineering, and math (STEM) framework.

Why Computer Science?

- Computing is ubiquitous; it touches everyone's daily lives.
- Numerous issues depend on computing:
 - Securing our cyber-infrastructure
 - Protecting national security
 - Implementing electronic health records
 - Increasing efficiency of the energy infrastructure
- Computer science-related jobs remain strong despite extraordinary economic challenges.

Why Computer Science Education?

- Provides engaging way to expose students to critical thinking, a key skill for students entering any career.
- Instills understanding of computation and computational thinking for success in the digital age.
- As the role and significance of computing has grown, the teaching of computer science in K-12 has faded:
 - Too few students have opportunities to take engaging, rigorous computer science in high school
 - Little ethnic and gender diversity among those who do
 - Too few opportunities for professional development
 - Certification system for computer science teachers across the states is broken
 - Confusion between computer science and information technology literacy
 - Too little innovation in creating appropriate curricula for students

Key Facts

- By 2016 current government projections show that more than 1.5 million high-end computing jobs will be created in the economy making it one of the fastest growing occupational fields.
- Five of the top ten fastest growing jobs will be in computing-related fields (i.e.; computer software engineering jobs are expected to grow 45% over the next five to seven years).
- Computer science and computer engineering bachelor degrees are in high demand and command two of the top three average salary offers from employers among all majors.
- The percent of high schools with rigorous computer science courses fell from 40% to 27% from 2005-2009.
- The percent of high schools with introductory computer science courses fell from 78% to 65% from 2005-2009.

- The majority of states have no certification for computer science teachers; in states where certification or endorsement exists, the requirements may have little, if any, computer science content.
- Only 17% of AP computer science test-takers in 2008 were women, although women represented 55% of all AP test-takers.
- Participation in computer science AP tests among underrepresented minorities has increased in the past 10 years but is only 11%, compared to 19% of all AP test-takers.
- Only 4% of AP Computer Science test takers in 2008 were African Americans, although African Americans represented 7% of all AP test takers. Only 784 African American students nationwide took the AP Computer Science exam.

What Can I Do to Raise Awareness About These Issues?

- Visit this site often and join in the conversation
- Become a fan of CSEdWeek.org and follow our social network feeds
- Share your videos, pictures, and other resources to show what computer science education means to you

What Activities Can We Undertake to Support Computer Science Education Week?

For Policy Makers

1. Ensure that computer science learning is based on conceptual knowledge of the field.
2. Make rigorous high school computer science a core course for math or science graduation requirements.
3. Introduce computational thinking in the crucial K-8 school years.
4. Expand efforts to increase the number of females and underrepresented minorities in the field.
5. Clarify and expand computer science teacher professional development opportunities.
6. Implement a specific set of rigorous computer science standards for secondary education.
7. Adopt initiatives to increase the number of students taking Advanced Placement computer science.
8. Focus research funding on K-12 computer science education.
9. Review how states can improve computing teacher certification requirements.
10. Share jobs data with your communities that demonstrate the employment opportunities in computing.

For Teachers

1. Have students keep a journal of all the technology they use in a day.
2. Hold a computer science poster, video, commercial or essay contest (possible topic – What future computer technology would you like to see developed?).
3. Have students tell a story using *Alice* <http://www.alice.org/> or *Scratch* <http://scratch.mit.edu/>.
4. Invite an outside speaker (e.g., local computer scientist) to discuss the many jobs in computer science.
5. Conduct *CS4FN* www.cs4fn.org and *CS Unplugged* <http://csunplugged.org/> activities.
6. Have students create a web page celebrating CSEdWeek.
7. Hold a competition on standard computer science problems. Examples may be found on the American Computer Science League website <http://www.acsl.org/samples.htm>, on many college or university websites such as <http://cs.sru.edu/~contest/>, or by searching the internet for interesting competition problems.
8. Ask students to identify and discuss TV shows or movies that incorporate computers; or compare computer technology contained in 1960's movies to current movies.
9. Show students the Randy Pausch "Last Lecture" video http://www.youtube.com/watch?v=ji5_MqicxSo or the University of Washington computer science videos www.cs.washington.edu/WhyCSE.
10. Ask students to identify and discuss current events that have computer science as a theme.

Sponsors and Partners

The development of CSEdWeek is a joint effort led by ACM with the cooperation and deep involvement of the Computer Science Teachers Association, the Computing Research Association, the National Center for Women & Information Technology, the Anita Borg Institute, the National Science Foundation, Google Inc., Intel, and Microsoft.

