

Between 2010-2020, the U.S. Department of Labor projects that there will be nearly 1.4 million computing-related job openings in the U.S.

- If current graduation rates continue, only 61% of these jobs could be filled by U.S. computing degree-earners.
- When considering only computing bachelor's degrees this percentage drops to 29%.

## Counselors for Computing

*Counselors for Computing (C4C)* is a four-year campaign that equips school counselors with information and resources they can use to advise students about paths toward stable, rewarding, and flexible computing careers.

Use C4C information and resources to inform thousands of students — especially girls — about opportunities in computing and encourage them to pursue education and careers in these fields.



## Counselors have an important role to play

C4C helps you increase students' interest and preparedness for computing jobs.

### Through C4C you learn

- Up-to-date information about different kinds of computing jobs. Technology is driving innovation in every sector of the economy, resulting in jobs many people don't even know about.
- Little-known benefits of these jobs for students.
- Why having a larger and more diverse talent pool matters.
- What computing is — beyond what many think it is — and why underrepresented groups should be encouraged to participate.
- Key factors that influence students' participation in computing.
- Tips for advising students on how to prepare for these careers.

### Through C4C you receive

- **Talking Points Card** you can use to share important information about computing and careers with your students and their parents.
- **Community College, Military, and University Pathway Cards** for students. These cards align students' interests with clear actions that lead to stable, rewarding, and flexible careers.
- **Intersecting Pathways Poster** to hang on your wall for easy reference to computing pathways information.
- A **lesson plan** with a slideshow and activities to use with students.
- Access to a **community of counselors** interested in this effort.

Significant factors shown to influence students' involvement in computing include **access to role models, encouragement, recognition, and exposure to quality experiences.**

# Counselors for Computing

## QUICK FACTS

### Technology Is Changing the World

Technology affects almost every aspect of modern life, and our students use technologies skillfully. Let's be sure they also participate in the invention of the next world-changing technologies.

### Technical Jobs Not Limited to Tech Companies

Technical innovation is critical to things students care about. Imagine your students in:

- **Healthcare** – Developing software for a cochlear implant that helps people who are deaf to hear
- **Art** – Designing 3-D digital scanners that aid preservation of ancient artworks
- **Gaming** – Developing video games that rely more on brainpower than finger dexterity
- **Environmental Protection** – Creating global climate models that help to predict how Earth's climate is changing
- **Humanitarian Relief** – Inventing low-cost location devices to keep aid workers and separated families connected during disasters



Photo: WGBH-Dot Diva/New Image for Computing Initiative

### Lots of Jobs, High Pay

Between 2010-2020, the U.S. Department of Labor estimates that there will be approximately 1.4 million computing-related job openings in the U.S. — an increase of 22%. The average projected growth of all other jobs is 10%.

Given commensurate levels of education and time to graduation, computing occupations are more stable and pay better than other jobs.

Preparation	Sample Occupation	Projected growth by 2020	Average Annual Salary/Hourly Wage (2012)
2-year Degree or Equivalent Military Training	Network Technician	18%	\$46,260/\$22.24
	Computer Support Specialist/Help Desk	18%	\$46,260/\$22.24
	Environmental Engineering Technician	24%	\$43,390/\$20.86
	Medical Record, Health Information Technician	21%	\$32,350/\$15.55
4-year or Advanced Degree	Web Developer or Website Manager	22%	\$75,660/\$36.37
	Database Administrator	31%	\$73,490/\$35.33
	Software Developer	30%	\$90,530/\$43.52
	Computer Scientist	19%	\$100,660/\$48.39
	Software Engineer (Applications)	9%	\$98,810/\$47.50

Source: U.S. Department of Labor, Occupational Outlook Handbook, 2012-2013.

# Counselors for Computing QUICK FACTS

## Qualified People Are Needed

Increasing girls' participation in computing could significantly reduce the gap between qualified workers and available jobs. Diversification of the workforce also leads to better innovation.

26

Percent of technical employees who are women<sup>1</sup>

24

Percent of Fortune 500 CIOs (chief information officers) who are women<sup>2</sup>

54

Percent of Advanced Placement (AP) test-takers in 2012 who were female<sup>3</sup>

46

Percent of AP Calculus test-takers in 2012 who were female<sup>4</sup>

19

Percent of AP Computer Science test-takers in 2012 who were female<sup>5</sup>

57

Percent of 2011 undergraduate degree recipients who were women<sup>6</sup>

18

Percent of 2011 Computer and Information Sciences undergraduate degree recipients who were women<sup>7</sup>

### Sources:

1. U.S. Department of Labor, Bureau of Labor Statistics, 2013.
2. Boardroom Insiders, 2012.
- 3,4,5. College Board AP Program Summary Report, 2012 (Calculus AB & BC, Computer Science A).
- 6,7. National Center for Education Statistics (NCES), 2011 (CIP 11); 2010-2011 CRA Taulbee survey (Computer Science).

## Access to Role Models, Recognition, Encouragement, and Exposure to Quality Experiences Make a Difference in Students' Participation

Take action and help students get involved.

- **Access to role models** — Invite technical professionals to school.
- **Recognition** — Nominate a girl for the NCWIT Award for Aspirations in Computing.
- **Encouragement** — Help students distinguish between computer applications and computer science courses, and encourage them to take computer science!
- **Exposure to quality experiences** — Advocate for computer science courses in your district (talking points for doing so at [www.ncwit.org/schools](http://www.ncwit.org/schools)). Suggest students get involved in camps, courses, competitions, and clubs.



[www.ncwit.org/award](http://www.ncwit.org/award)

In 2013, 1,000 high school girls were granted the NCWIT Award for Aspirations in Computing.

100 teachers and counselors received the NCWIT Aspirations in Computing Educator Award for encouraging girls and received over \$100,000 in professional development funds. Help grow the award. Encourage girls to apply this September.

### Get Involved!

- **Bring Counselors for Computing to your area.** Contact [c4c@ncwit.org](mailto:c4c@ncwit.org).
- **Get Counselors for Computing resources.** Visit [www.ncwit.org/c4c](http://www.ncwit.org/c4c).

**SPREAD THE WORD: JOIN COUNSELORS FOR COMPUTING**  
[www.ncwit.org/c4c](http://www.ncwit.org/c4c)

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