Counselors have an important role to play

**Counselors for Computing** (C4C) equips school counselors and others in an advising role with information and resources they can use to advise students about paths toward stable, rewarding, and flexible careers in computing.

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

**Counselors for Computing**

*Technology is driving innovation in every sector of the economy, resulting in an abundance of creative and lucrative jobs — many of which people don’t even know about!* C4C helps counselor shape students’ interest and preparedness for these jobs.

**Advances in US computer science education have implications for counseling**

Currently, most high schools do not offer computer science, but change is afoot!

- CS education is proliferating. The National Science Foundation has committed $120 million over five years toward the goal of training 10,000 new teachers across the US.
- Inclusive new courses *Exploring Computer Science* and *AP Computer Science Principles* are making computer science accessible to a broader array of students.
- More than half of US states now count computer science toward math or science requirements in high school.
- Computer Science Education Week and the Hour of Code have increased public awareness, resulting in more students and parents expecting computer science to be offered in their schools.

**Through C4C**

- Discover what computing really is (beyond what many think it is).
- Understand why having more — and more kinds — of people involved matters.
- Get up-to-date information about different kinds of computing jobs and the benefits of these jobs for students.
- Learn about new CS courses, how they fit in the school curriculum, and how they counting toward graduation and college requirements in your state.
- Learn how students’ interests and career aspirations align with computing.
- Examine key factors that influence students’ education and career choices.
- Get research-validated tips for advising and plan meaningful interactions so diverse groups of students get involved.

By 2024, the U.S. Department of Labor projects that there will be nearly 1.1 million computing-related job openings in the U.S.

- If current graduation rates continue, 84% of these jobs can be filled by U.S. computing degree-earners.
- When considering only computing bachelor’s degrees this percentage drops to 41%.
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
HALF of these jobs are outside the tech sector. 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

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

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Sample Occupation</th>
<th>Projected growth by 2024</th>
<th>Median Annual Salary/Hourly Wage (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year Degree or Equivalent Military Training</td>
<td>Computer Support Specialist</td>
<td>12%</td>
<td>$50,380/$24.22</td>
</tr>
<tr>
<td></td>
<td>Environmental Engineering Technician</td>
<td>10%</td>
<td>$48,170/$23.16</td>
</tr>
<tr>
<td></td>
<td>Medical Record, Health Information Technician</td>
<td>15%</td>
<td>$35,900/$17.26</td>
</tr>
<tr>
<td></td>
<td>Web Developer</td>
<td>27%</td>
<td>$63,490/$30.52</td>
</tr>
<tr>
<td>4-year or Advanced Degree</td>
<td>Database Administrator</td>
<td>11%</td>
<td>$80,280/$38.60</td>
</tr>
<tr>
<td></td>
<td>Software Developer</td>
<td>30%</td>
<td>$90,530/$43.52</td>
</tr>
<tr>
<td></td>
<td>Computer Systems Analyst</td>
<td>21%</td>
<td>$82,710/$39.76</td>
</tr>
<tr>
<td></td>
<td>Computer Scientist</td>
<td>11%</td>
<td>$108,360/$52.09</td>
</tr>
</tbody>
</table>

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 greater innovation.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>57%</td>
<td>percent of professional occupations in the 2015 U.S. workforce held by women</td>
</tr>
<tr>
<td>25%</td>
<td>percent of professional computing occupations in the 2015 workforce are held by women¹</td>
</tr>
<tr>
<td>17%</td>
<td>percent of Fortune 500 Chief Information Officer (CIO) positions held by women in 2015²</td>
</tr>
<tr>
<td>56%</td>
<td>percent of Advanced Placement (AP) test-takers in 2015 who were female³</td>
</tr>
<tr>
<td>47%</td>
<td>percent of AP Calculus test-takers in 2015 who were female⁴</td>
</tr>
<tr>
<td>22%</td>
<td>percent of AP Computer Science test-takers in 2015 who were female⁵</td>
</tr>
<tr>
<td>57%</td>
<td>percent of 2014 undergraduate degree recipients who were women⁶</td>
</tr>
<tr>
<td>17%</td>
<td>percent of 2014 Computer and Information Sciences undergraduate degree recipients who were women⁷</td>
</tr>
</tbody>
</table>

Sources:
2. Boardroom Insiders, 2015 (“Five Facts About Fortune 500 Female CIOs”)
   http://web.boardroominsiders.com/bid/401989/Five-Facts-About-Fortune-500-Female-CIOs
6,7. National Center for Education Statistics (NCES), 2014 (CIP 11, Computer and Information Sciences); 2013-2014 CRA Taulbee survey (Computer Science).
Significant factors influence students’ involvement in computing.

Take action and help them get involved.

- **Exposure to quality experiences** — Enroll young women in pairs into CS; suggest students get involved in camps, courses, competitions, and clubs; advocate for computer science courses in your district (talking points for doing so at www.ncwit.org/schools).
- **Access to role models** — Invite technical professionals and college students to school; arrange for field trips, career fairs, job shadows, and internships.
- **Encouragement** — Help students distinguish between computer applications and computer science courses, and encourage them to take computer science!
- **Recognition** — Nominate a high school woman for the NCWIT Award for Aspirations in Computing.

1,956 high school women received the NCWIT Award for Aspirations in Computing in 2016.

Fifty-one teachers and counselors received the NCWIT Aspirations in Computing Educator Award for encouraging high school women and received over $50,000 in professional development funds.

Help grow the award by encouraging young women to apply each September. See: www.aspirations.org.

Get Involved!

- **Bring Counselors for Computing to your area.** Contact c4c@ncwit.org.
- **Get Counselors for Computing resources.** Visit www.ncwit.org/c4c.

SPREAD THE WORD: JOIN COUNSELORS FOR COMPUTING

www.ncwit.org/c4c

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