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Counselors Can
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Diverse Range of Girls
in Computing Science
Learning Opportunities
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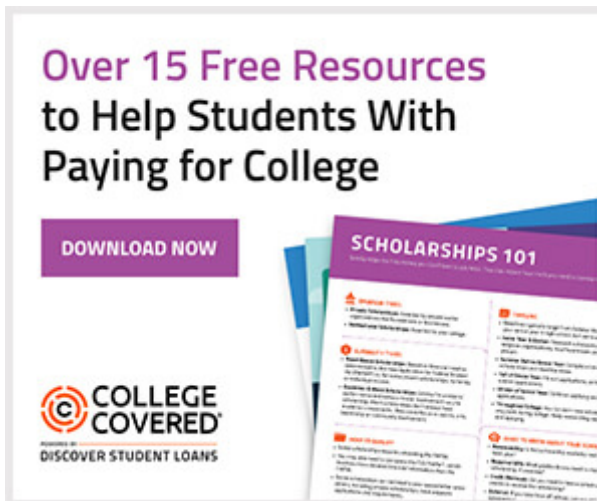
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can-actively-engage-a-diverse-range-of-girls-in-computing-science-learning-opportunities/

Computing occupations are fast-growing and can offer high entry-level salaries. Computing professionals work on the cutting edge of science and technology, are influential, work independently and creatively, and enjoy freedom relative to other fields—yet only 26% of them are women. Middle and high school girls are less likely to take elective computing classes, a trend that extends into college. Pre-college boys and girls have similar grades, scores, and course taking, but pursue different career interests because of race, belonging, and identity.

Counselors can use active recruitment strategies to encourage girls to take computing classes. The four ingredients of effective recruitment are Interest, Confidence, Belonging, and Identity: ICBI.

Build interest in computing! Interest in an activity is influenced by one's beliefs that they can be successful and that the outcome will be worth their time and energy. It's important

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be worth their time and energy. It's important

to connect to things that girls already care

about and to show them that they can be

successful. Describe computing as socially

relevant, as solving many problems in the

world, and as expressing creativity. Show

interesting projects students have done in

the class, like designing apps or creating

artistic wearables. Computing professionals

are highly collaborative and work in any

industry.

"Scratch lets me show others that coding is

important. Coding is your superpower and

you can accomplish anything you put your

mind to." – Abby, age 7.

Build girls' **confidence!** Girls often tacitly

believe social stereotypes that women aren't

technical and that men are, which chips away

at their confidence. As a result, they need

explicit assurance that they will do well in

computing classes. Celebrate the knowledge

they already have to get started.

"School counselors play a critical role in

students' career development by ...

addressing both intentional and

unintentional biases related to college and

career counseling" – ASCA The School

Counselor & Career Development

Build a sense of **belonging!** Ask girls if there

is a friend or group that might take a class

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is a friend or group that might take a class with her—like the girls’ softball team—to support a sense of community in the classroom. Suggest that teachers broaden appeal by showcasing posters of women leaders in computing and pictures of former female students! Teachers are vigilant about classroom conversations, the assignments they use, and shutting down any boys who

make girls feel they don’t belong.

“I was discussing career options with my school counselor. She saw that I had been taking a lot of classes that utilized problem-solving skills, so she suggested I look into computer science (CS) as a career option. When I learned how CS could be a great creative outlet for me, I decided to pursue it in college.” – Calvin University Student Nikita S.

Build **Identity!** Hang posters on your walls or hallways showing interesting and valued contributions of women and minority computer scientists. Encourage girls to watch videos of successful computer scientists (who happen to be women). If girls express concern about there being only a few girls in the class, share diverse examples of examples of women’s progress in STEM:
If/Then Collection
(<https://www.ifthencollection.org/>),
CSEdWeek

(<https://www.csedweek.org/teach>).

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Bridging the Encouragement Gap in Computing

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(<https://www.ncwit.org/resources/bridging-encouragement-gap-computing>)

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There is consensus among researchers that encouragement matters and plays a critical role in engaging more young women and girls in computing. Here are some key highlights from published research studies, and follow-up tips on practicing encouragement.

NCWIT Tips: 8 Ways to Give Students More Effective Feedback Using a Growth Mindset (<https://www.ncwit.org/resources/ncwit-tips-8-ways-give-students-more-effective-feedback-using-growth-mindset-0>)

Effective feedback gives students information they actually use to increase their learning and improve their performance. It should employ a “growth mindset” that focuses on developing intelligence through effort, practice, and “wise feedback” that spurs additional effort.

Top 10 Ways Families Can Encourage Girls’

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(<https://www.ncwit.org/resources/top-10-handouts>)
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ways-families-can-encourage-girls-interest-computing)
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Technology is a fast-growing, high-paying, creative field. Here are 10 ways that you, as a
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family member, can encourage the girls in
your life to study, and have a career in,
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computer science and related technology
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Top 10 Ways to Engage Underrepresented
Students in Computing
(<https://www.ncwit.org/resources/top-10-ways-engage-underrepresented-students-computing>)

These tips will help you to engage students in your computing courses and retain them in the major. These ideas and examples are drawn from theory and research conducted by social scientists who study issues related to diversity and retention in computing. Methods range from encouraging words to inclusive classroom environments.

Top 10 Ways of Recruiting High School Women into Your Computing Classes
(<https://www.ncwit.org/resources/top-10-ways-recruiting-high-school-women-your-computing-classes>)

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Recruiting diverse students to computing requires that you spark their interest, build their confidence they can succeed, create a community where they feel like they belong, and help them see themselves as a “computing person.” This Top 10 list offers practices that help you recruit high school girls to your computing courses.

Virtual Classroom Decor for Computer Science and Tech Educators (<https://www.ncwit.org/resources/virtual-classroom-decor-computer-science-and-tech-educators>)

Inspired by teachers creating Bitmoji virtual classrooms, NCWIT has assembled a set of interactive elements to help teachers make all students feel welcome and to maintain and enhance their interest in computing. By adding the elements to their own virtual classrooms, teachers can maintain a positive classroom climate, show students “possible selves” in computing, maintain student interest, and show them career and other opportunities (including NCWIT opportunities, of course).

Learning About Intersectionality: Videos That Spark Discussion (<https://www.ncwit.org/resources/learning-about-intersectionality-videos-spark-discussion>)

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Use this slide deck, with its short videos (~3

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min) and discussion questions, to learn about

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the complexity of gender, the concept of

intersectionality, and how to have productive

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discussions about race.

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Computer Science Is for Everyone! A toolkit

for middle and high schools to increase

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diversity in computer science education

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([https://www.ncwit.org/resources/computer-](https://www.ncwit.org/resources/computer-science-everyone-toolkit-middle-and-high-schools-increase-diversity-computer)

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schools-increase-diversity-computer)

Schools across the country and around the world are working to increase access to quality CS education. But while CS classes and opportunities are expanding, too many students — especially girls, Black, Latino and Native American youth — feel like it's not for them. As a result, the whole world misses out on the diverse perspectives needed to fuel innovation and drive change. The insights and tools in this kit will help ensure all young people understand the value of a CS education and feel welcomed and empowered to succeed

Click **here**

(<https://www.ncwit.org/resources/computer-science-everyone-powerpoint>) to view the accompanying PowerPoint deck.

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influencers understand the research-based
reasons why a diverse range of girls are less
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school. High school teachers are provided
with actionable recommendations for
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creating, recruiting and outreach
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By Lecia Barker, Ph.D. University of Colorado
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