# Computer Science Learning: Closing the Gap
## Girls

Computer science (CS) education is critical in preparing students for the future. CS education not only gives students the skills they need to succeed in the workforce, but it also fosters critical thinking, creativity, and innovation. Women make up half the U.S. college-educated workforce, yet only 25% of computing professionals.[1] This summary highlights the state of CS education for **girls in 7th–12th grade** during 2015–16.
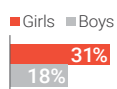
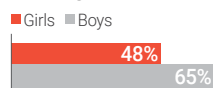### Less likely to learn CS on their own (of students who learned CS)
■ Girls ■ Boys
41%
54%
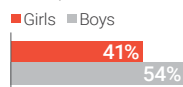
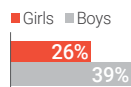### More likely to use a cellphone or tablet every day
■ Girls ■ Boys
84%
68%
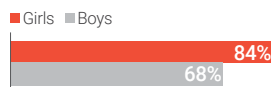
More likely to never see people like them "doing CS" in the media (of students who see people in the media "doing CS")
■ Girls ■ Boys
31%
18%

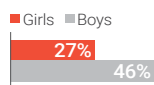### Less likely to be very confident in learning CS
■ Girls ■ Boys
48%
65%

Less likely to be told by teacher they would be good at CS
■ Girls ■ Boys
26%
39%

Less likely to be told by parent they would be good at CS
■ Girls ■ Boys
27%
46%

Findings

Girls are less likely than boys to be aware of and encouraged to pursue CS learning opportunities. Girls are also less likely to express interest in and confidence in learning CS. We found that **7th–12th grade girls**:

Learning CS
- **Are less likely to learn CS.** Although there are no gender differences in access to CS in schools, girls are less likely than boys to say they have learned any CS (50% vs. 59%).
- **Are less aware of and less likely to participate in CS learning outside of school.** Of students who learned CS, only 31% of girls learned CS online (vs. 44% of boys) and only 41% of girls learned CS on their own (vs. 54% of boys).

Access and Exposure to CS and Technology
- **Have higher computer and mobile usage.** 42% of girls report using a computer at home every day (vs. 36% of boys) and 84% of girls use a cellphone or tablet every day (vs. 68% of boys).
- **Are less likely to have CS role models in the media.** Girls are less likely to see people in the media "doing CS," and of those who do, 31% of girls say they never see people like them (vs. 18% of boys).

Interest, Confidence, and Encouragement in CS
- **Show lower interest in and confidence to learn CS.** Girls are half as likely as boys to say they are "very interested" in learning CS in the future (16% vs. 34%), and nearly twice as likely to say they are "not at all interested" (24% vs. 13%). Only 48% of girls are "very confident" they could learn CS (vs. 65% of boys).
- **Are less likely to be encouraged by teachers and parents that they would be good at CS.** Only 26% and 27% of girls have been told by a teacher or a parent, respectively, that they would be good at CS (vs. 39% and 46% of boys).

Recommendations
- **Encourage interest and facilitate exposure.** Expose girls to various CS learning opportunities using technologies they are already engaged with to increase awareness and build confidence.
- **Change narratives.** Share stories and news coverage of impactful work and career opportunities involving CS. Look for examples of diverse computer scientists in the media (and history) to help create a more relatable image of the field.
- **Be mindful.** Help close the diversity gap by being mindful of how our unconscious biases and stereotypes of CS and computer scientists may steer girls away.

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Data Tables

Google commissioned Gallup to conduct a multi-year, comprehensive research effort in the United States to better understand computer science perceptions, access, and learning opportunities among underrepresented groups. The below data are nationally representative and show summaries of responses from 1,672 7th–12th grade students in the U.S., including 771 female students and 901 male students, surveyed 2015–16. Sample sizes may vary by question. See **g.co/cseduresearch** for methodology in the full ***Diversity Gaps in Computer Science: Exploring the Underrepresentation of Girls, Blacks and Hispanics*** report.

Learning CS	Girls	Boys
Have you ever learned ANY CS, such as using programming to create software, apps, games, websites, or electronics? (%yes)	50	59
Have you ever learned computer science in ANY of the following ways? Online through a class, program, or online community (Asked only of students who HAVE learned CS) (% yes)	31	44
Have you ever learned computer science in ANY of the following ways? On your own outside of a class or program (Asked only of students who HAVE learned CS) (% yes)	41	54

Access and Exposure to CS and Technology	Girls	Boys
In a typical week, how often do you use a computer at HOME? (% every day)	42	36
In a typical week, how often do you use a cell phone or tablet? (% every day)	84	68
How often do you see or read about people doing computer science in each of the following places? (Online through social media, articles, or videos) (% often)	39	26
Thinking about all of the people you see or read about doing computer science in TV shows, in movies, or online, how often do you see people like you doing computer science? (Asked only of those who see people doing CS "often" or "sometimes" on TV, movies, and/or online) (% never)	31	18

Interest, Confidence, and Encouragement in CS	Girls	Boys
How interested are you in learning computer science in the future? (% very interested/not at all)	16/24	34/13
How likely are you to have a job someday where you would need to know some computer science? (% very likely)	22	35
How confident are you that you could learn computer science if you wanted to? (% very confident)	48	65
Has a teacher ever told you that you would be good at computer science? (% yes)	26	39
Has a parent ever told you that you would be good at computer science? (% yes)	27	46

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