



Overview

Tracy Unified School District (USD) is working to bring computer science to more students by embedding computer science content into STEM units in all grade levels. The overall number of standalone computer science courses available in Tracy USD is growing but features substantial variation, and those courses feature lower percentages of younger, female, and Hispanic than the district population. District leaders report that in a district that has committed to expanding computer science learning opportunities, support from the Educator Workforce Investment Grant in Computer Science (EWIG: CS) has helped teachers get more comfortable teaching the content. As it moves forward, Tracy USD is trying to make space in schedules and find teachers who are excited about computer science so more students have the chance to participate.



Tracy Unified School District

Tracy Unified School District is situated in a growing community of over 89,000 in San Joaquin Valley, California. The district serves nearly 16,000 students in three high schools, two middle schools, four K–8 schools, and seven elementary schools. Tracy recently rebranded as a Pre K–12 STEM district with a mission that one district leader described as using “engaging STEM experiences [to] connect each student to the real world and prepare them for college and career success through collaboration, critical thinking, and problem solving.” To bring this new emphasis to life in classrooms, the district used a federal Education Innovation and Research grant to create four STEM units per grade level. Each unit is designed to reach all students in the district. Computer science is central to these units, which district leaders see as vehicles to expose all students to computer science knowledge and skills not just those who take standalone courses in high school. According to one administrator, “Our approach is, if we embed computer science opportunities [in] prekindergarten through [Grade] 12 in the general curriculum, then all students will have access.”

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Computer Science Course Offerings

The number of standalone computer science courses in Tracy is growing but inconsistent; enrollment declined after the onset of the COVID-19 pandemic and rebounded in recent years. Introduction to Computer Science, Introduction to Computer Science: Java, and AP Computer Science are offered at Tracy high schools.

Exhibit 1. Computer Science Course Enrollment in Tracy High Schools

Year	Computer science students	Computer science courses
2018–19	53	3
2019–20	112	5
2020–21	62	2
2021–22	72	3
2022–23	141	5
2023–24	143	6

Challenges to maintain computer science enrollment include master scheduling constraints, limits on teacher capacity, and a lack of time for electives. Because the district has not hired teachers specifically to teach standalone computer science classes, course availability hinges on the availability of credentialed and engaged teachers—in Tracy, typically math teachers—at each site. Moreover, because computer science classes are electives, building courses into the schedule relies on student interest. According to one district leader, “You need to have a teacher that has a passion for computer science and then they need to promote it to students.”

Because Tracy embeds computer science concepts into STEM units across all grade levels, the number of standalone courses and enrolled students does not necessarily reflect the district’s efforts to expose K–12 students to computer science through integrated instruction.

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Computer Science Course Enrollment

Although enrollment in computer science courses has grown overall, there are disparities in access among students based on grade level, race, and gender. In addition to matters of teacher availability and student interest, district leaders suggested that school culture also impacts enrollment: Schools with STEM-focused academies such as the Space & Engineering Academy encourage students to enroll in computer science courses. Other schools might not emphasize the importance of computer science enrollment as much.

Enrollment by Grade Level

The majority of students in computer science courses in nearly every school year are in Grade 12. In Tracy, sophomores rarely have space in their schedules for computer science electives; only 5% of students in 2023–24 were in Grade 10. As one district representative explained, “It’s not that students don’t want to take the class, but they literally can’t make it work.” Prerequisites also affect opportunities: Students in Grades 9 and 10 are less likely to have completed the required algebra courses to enroll in either introductory or Advanced Placement computer science courses. As a result, juniors and seniors compose a greater share of computer science students across all years.

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Exhibit 2. Tracy USD Computer Science Course Enrollment by Grade Level

Grade	Overall enrollment 2023–24	Computer science enrollment					
		2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
9	24%	6%	5%	34%	4%	14%	15%
10	25%	28%	3%	0%	5%	6%	5%
11	25%	21%	28%	40%	24%	30%	28%
12	26%	45%	64%	26%	67%	50%	52%

Source: CALPADS.
Exhibit Reads: In 2023–24, 24% of students in Tracy were in Grade 10. In 2023–24, 5% of students enrolled in a computer science course in Tracy were in Grade 10.

Enrollment by Race/Ethnicity

In addition to differences based on grade level, computer science course enrollment data in Tracy reveal disparities in participation based on race and ethnicity. The percentage of Asian students taking computer science courses is consistently higher than the percentage of Asian students in the district overall. The percentage of Hispanic students taking computer science courses is consistently lower than their representation in the general student body. The district is aware of low computer science enrollment among the Hispanic population and has specifically targeted Latina students using [Technolochicas](#) marketing materials such as posters on school grounds to showcase successful Latinas in computer science.

Exhibit 3. Tracy USD Computer Science Course Enrollment by Race/Ethnicity

Race/ethnicity	Overall enrollment 2023–24	Computer science enrollment					
		2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Asian	16%	19%	41%	27%	39%	48%	48%
Black/African American	6%	7%	4%	5%	4%	5%	2%
Filipino	6%	23%	11%	21%	13%	10%	9%
Hispanic	50%	24%	16%	21%	29%	18%	19%
White	17%	25%	21%	16%	10%	15%	15%
Multiple races	5%	2%	6%	6%	3%	4%	5%

Source: CALPADS

Notes: Demographic group ‘Missing’ is not included in the exhibit. The sum of the percentages may not equal 100%.
Exhibit Reads: In 2023–24, 50% of students in Tracy were Hispanic. In 2023–24, 19% of students enrolled in a computer science course in Tracy were Hispanic.

Enrollment by Gender

In Tracy, the percentage of male students taking computer science courses is consistently higher than the percentage of male students in the district overall. The percentage of female students is consistently lower than the district overall. The district is working on improving female underrepresentation by supporting STEM clubs in middle and high schools. The district works with the nonprofit, Girls Who Code, via Lawrence Livermore National Lab to offer virtual support and mentorship in Grade 6–12 Girls Who Code clubs.

Exhibit 4. Tracy USD Computer Science Course Enrollment by Gender

Gender	Overall enrollment 2023–24	Computer science enrollment					
		2018–19	2019–20	2020–21	2021–22	2022–23	2023–24
Female	48%	26%	20%	61%	32%	28%	17%
Male	52%	74%	80%	39%	68%	72%	83%

Source: CALPADS
Exhibit Reads: In 2023–24, 48% of students in Tracy were female. In 2023–24, 17% of students enrolled in a computer science course in Tracy were female.



The Educator Workforce Investment Grant’s Role in Supporting Computer Science Efforts

As Tracy continues to build its identity as a PreK–12 STEM district, the administration has relied significantly on EWIG: CS to fill critical gaps in professional development—particularly for new teachers and those with limited computer science experience. Seasons of CS registration records indicate that 29 Tracy educators participated in an EWIG: CS-sponsored learning opportunity during the 2023–24 school year. Programs like Summer of CS and Seasons of CS serve as essential supplements to district-led training, providing hands-on learning opportunities that the district could not offer on its own due to budget limitations. As one administrator explained, “The district has a hard time providing enough training for all of our teachers . . . The EWIG grant allowed teachers to receive additional training.” This extra training is especially valuable for newly hired math teachers to gain the skills and confidence needed to integrate CS tools into their classrooms. District leaders have found that the additional training often translates into a greater willingness to teach computer science courses.

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The Path Ahead

As Tracy continues to evolve as a STEM district, expanding access to computer science remains a central focus. At the middle school level, the district plans to increase the number of middle schools offering STEM electives—three of six campuses will introduce options next year. At the high school level, the district aims to grow its computer science course offerings by addressing current constraints: staffing limitations and scheduling challenges.

With respect to scheduling challenges, the district is exploring schedule reforms such as block scheduling and the implementation of a 7-period class day. These changes are designed to create more flexibility in students' schedules, allowing room for electives like computer science that are often out of reach due to core graduation requirements.

To overcome staffing challenges, the district plans to actively recruit and train teachers with a strong interest in computer science. District leaders view hiring educators who are excited about computer science as an instrumental step toward building a sustainable pipeline of computer science instruction. In addition to recruitment, Tracy is committed to building capacity by supporting current teachers through ongoing professional learning. Programs like Seasons of CS provide training that the district otherwise could not afford—particularly benefiting new teachers or those with limited experience in computer science.

Equity and inclusion are growing priorities in Tracy's approach to computer science in the district. District leaders are focused on culturally relevant and engaging projects that help students—particularly those from underrepresented backgrounds—see themselves in computer science. “When working with underrepresented populations. . . we need to provide even more support,” one interviewee emphasized. These efforts aim to increase participation and to retain students through meaningful and affirming learning experiences.

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The American Institutes for Research (AIR) has produced this case study as part of its evaluation of California's Educator Workforce Investment Grant in Computer Science (EWIG: CS). It is one of six case studies designed to illustrate the contextual details, strategies, successes, and challenges that shape efforts to expand computer science education in the state. For more information on the AIR evaluation, including additional findings about the EWIG: CS grant, please visit <https://www.air.org/project/evaluation-educator-workforce-investment-grant-computer-science>



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