



**EnCorps**   
IGNITE A PASSION FOR STEM

# Building the Future Workforce with EnCorps

The four-year college degree has been viewed as the traditional route to a well-paid, meaningful career but it's not the only route. **Career and Technical Education (CTE)** is a growing alternative, appealing for its accessibility, affordability and potential to align jobseeker skill sets with the requirements of employers across various industries.

### What is Career and Technical Education (CTE)?

- Hands-on learning through practical experience
- Aligned with careers and industry
- Prepares learners for the workforce or further education

High school is a critical time for providing students the opportunity to explore career options. While students may choose to follow varied routes after graduation, high school provides a space for young people to experience hands-on learning and exposure to fields in a safe, knowledgeable environment before taking steps toward their chosen pathway. CTE pathways at high schools are offered to allow students to explore a wide range of careers, from arts and the media to cutting edge engineering and technology. Meta-analysis has shown that CTE has a positive impact on student outcomes including their achievement, employability and college readiness ([CTE Research Network, 2024](#)).

CTE is particularly critical in Science, Technology, Engineering and Mathematics (STEM), which contributes \$10.87 billion to the US economy annually and where 53% of workers don't have a Bachelor's college degree ([AAAS, 2025](#)). Currently, CTE courses are taught by committed people with technical expertise and experience in industry, but often these educators lack adequate pedagogical training, with classroom management experience, to become highly effective. At EnCorps, with 18 years of recruiting STEM professionals to public school education, we are extending our approach to support the growth of a quality [CTE teaching workforce](#).



# Why now?

CTE is experiencing a period of growth and transformation across the United States (US). Society is changing, technology is changing, and our workforce needs to change to keep pace. A strong CTE system has the potential to equip jobseekers with the necessary skills for tomorrow, whilst supplying industry with workers able to drive forward a thriving economy. With a workforce shortage on the horizon ([Lightcast, 2025](#)), particularly in STEM fields, CTE could be the boost we need to supercharge growth across the US economy.

The momentum is here. Federal and state policy and funding consistently prioritize career-focused system design. In 2023, President Biden committed to CTE in his State of the Union address ([White House, 2023](#)), backed by a positive growth in Perkins V funding, the main CTE funding source ([US Department for Education, 2025](#)). An Executive Order ([White House, 2025](#)) signed in April 2025 by President Trump signals that CTE remains high on the federal agenda.

California identifies CTE occupations based on future workforce needs. National Career Clusters are designed specifically to ensure that students are equipped with the skills industry needs for tomorrow ([CareerTech, 2025](#)). Our workforce is also changing: research by the US Chamber of Commerce illustrates that this workforce of the future will be more female and increasingly diverse ([US Chamber of Commerce, 2023](#)). Intervention in K-12 education and CTE is required to improve diversity within the STEM fields in particular if we are to compete internationally and if we are to avoid amplifying disparities through compounding bias in new technology ([US Chamber of Commerce Foundation, 2022](#)).





# What about California?

Nationwide projections show a 10.4% growth in STEM jobs between 2023 and 2033, which is more than double the growth rate for non-STEM jobs ([US Bureau of Labor Statistics, 2025](#)).

Nowhere is CTE more necessary than in California, the state identified to have the largest growing STEM workforce in the US, set to lead the country in this industry ([Employment Development Department, 2015](#)).

- Labor shortages already exist in key industries such as healthcare and future focused industries such as green technology, many of which fall under the STEM umbrella.
- Regional economies are seeking skills for specific industry needs:
- Information Technology & Biotechnology thrive in the Bay Area
- Film, Media and Aerospace are growing in Southern California
- The Central Valley is the country's agricultural heartland.
- California is a deeply diverse state, which is undoubtedly an asset, though there remain persistent disparities between groups ([Public Policy Institute of California, 2023](#)).

That's why the state has issued a renewed focus on coordinating and growing its CTE system. As shown in Figure 1, the state has a web of pathways offered to students in various CTE industries. Further commitments have recently been made to grow this offer. The Master Plan for Education, published in December 2024, signals a mission to prepare our students for the future workforce through coordination, growth and accessibility ([Office of Governor Newsom, 2024](#)). Through the Golden State Pathways Program, California has already awarded \$374 million in grants to develop CTE pathways in high-demand careers ([LAO, 2025](#)). CTE is essential not only to prepare students for meaningful careers, but also to keep California economically resilient, equitable, and globally competitive.





# The momentum is building-but the question remains: Are we doing enough to prepare all Californians for the future?



**Figure 1: California's Career Technical Education Pathways. Several pathways include STEM-related occupations, particularly Agriculture and Natural Resources, Information and Communication Technologies and Health Science and Medical Technology. ( ccrforce.org)**

Getting CTE right is not just about increasing funding. The California State legislature has already invested \$7.3 billion in wide-ranging workforce initiatives, but these investments must be paired with strategic, systemic change.

The California Master Plan for Education ([Office of Governor Newsom, 2024](#)) outlines ambitious goals for aligning education with workforce needs. But for these to succeed, we must ensure that our foundational systems- governance, educator supply, and curriculum- are ready. In order to achieve the ambitious goals our state is pursuing, we require the drive, the cooperation and the capacity to ensure this work is equitable , consistent and sustainable .

Effective CTE needs a system which is accessible, affordable and aligned with industry demand. Without these three pillars, the funding commitments will fall short in providing meaningful, high quality career education to all Californians. Further, targeting sectors with projected growth and current labor shortages- particularly in health care, green technologies, and wider STEM fields-is essential for maintaining California's competitiveness and resilience.



While the state has momentum and financial commitment, three key barriers remain: a shortage of qualified CTE educators at high school, uneven program quality and a cultural perception gap. These barriers are deeply connected to one another and a holistic approach, backed by organizations across our communities, could be key to solving them.

# 1. CTE Educator Shortages Are a Structural Bottleneck

Not all California learners have access to high-quality CTE instruction. A robust system requires a steady supply of trained, credentialed educators - but CTE teaching positions are increasingly hard to fill. Nationwide, filling academic teacher vacancies is challenging, but CTE vacancies are reported to be 46% harder to fill, especially in STEM-related disciplines ([Brookings, 2024](#)).

One part of this issue relates to the new credentials being issued and the lack of new teachers entering the field. In 2023-24, only 1,834 preliminary CTE credentials were concentrated in Arts, Media, and Entertainment (23.8%), while scientific and technical fields saw significantly lower numbers, particularly Engineering and Architecture and Energy, Environment and Utilities ([Commission on Teacher Credentialing, 2025](#))

Retention is also an issue. CTE teachers are 25% more likely to leave roles in the education sector, a statistic which increases in STEM fields, particularly health science and IT ([Fordham Institute, 2024](#)). There are many complex factors that lead to high rates of teacher attrition including lower pay compared to other options. Early career teachers are more likely to leave teaching, indicating that reasons such as a misunderstanding of the reality of teaching and inadequate training may also play a role.



The CTE educator pipeline faces several obstacles:

- Industry experience requirements for credentials
- A complex and time-consuming credentialing system
- Lower salaries compared to other subjects and to private sector jobs
- Limited transition support for industry professionals entering the classroom

Transitioning from industry to teaching is a big change. That's why EnCorps' CTE New Teacher Training Program for LAUSD matches new CTE teachers with mentors at local partner schools. Through this experience, mentors provide coaching and mentees reflect on their practice. Merging a seasoned educator's expertise with industry concepts from a STEM professional can reap massive benefits for students.

*'After our coaching conversations and reflections, along with his efforts, I began to see small, effective changes. [[Mr. Solis]] has now written the agenda on the board with the tasks written for students to see. He now projects slides on his board for students to reference.*

*Lastly, he has enforced expectations for students, as they come into the classroom and walk directly to their stations, open their computers, or work on their projects. These small changes have had an impact on student learning and school culture as well. His classroom environment has shifted, as he has created a culture that promotes learning through a hands-on approach.'* (LAUSD MENTOR TEACHER)



## 2. Program Quality and Equity are Uneven Across the State

CTE programs can offer students a direct path to high-skill, high-wage careers-but only when they are well-designed and industry-aligned. California's state CTE plan emphasizes the need for programs to remain current with evolving workplace trends. Yet on the ground, this vision is far from universal.

- Program availability varies significantly by county, district, and institution-disproportionately affecting underserved communities, particularly in rural areas ([EdCal, 2025](#)). This disparity can be exacerbated in areas and institutions where there are fewer high-quality educators available. Hiring pools can be limited by distance from industry bases, or in rural areas.
- Many K-12 providers lack the capacity and expertise to continually update curricula.
- Business partnerships, essential for relevant programming and hands-on learning, are inconsistent, further deepening inequalities.

## 3. CTE Still Faces a Cultural Perception Gap, and even in the CTE classroom, motivation can act as a barrier

Unlike traditional four-year college pathways, CTE lacks strong cultural understanding and social validation. Parents in particular remain unclear on what CTE offers, how it works, or whether it is a viable option compared to heading to college to get a degree, though interest in work-based options are growing in popularity with students ([American Students Assistance, 2025](#)).



While popularity with parents is growing, there remain concerns from some that CTE doesn't lead students to college, with some associating CTE with traditional trades, which lack the prestige of other career options. ASA research suggests that parental influence can have a large impact on students' next steps, which can contribute to under-enrollment and hesitancy, despite strong labor market demand.

EnCorps CTE educators share that motivation is a growing barrier in the CTE classroom with students struggling to understand the consequences of failing at high school or not finding a path. This is backed by evidence: a Gradient Poll report illustrates the growing engagement gap in US education, with the use of material for students' everyday lives quoted as a key reason for lack of motivation ([Gradient Learning, 2023](#)). If California is to drive a CTE system that propels students into successful careers, motivation needs to be embedded by a system of teachers, experts and media that can highlight the value of learning, especially in STEM fields.

*'I would say to them that I guarantee that this will come up in [your] life: what [you] are learning right now, [you] will absolutely use. And a lot of the time, they don't believe that.'*

- Michel, EnCorps Fellow teaching CTE in San Diego

# What can we do?

## Train and prepare high-quality CTE educators in STEM fields.

In 2023-24, the four STEM CTE industries combined only accounted for 21.7% of the preliminary CTE credentials issued ([Commission on Teacher Credentialing, 2025](#)).

These industries, particularly Health Science, Energy, the Environment and Utilities, are high demand fields for the future. We need to ensure that students have access to educators who can teach them how to advance medical technology and solve the complex scientific challenges associated with climate change.



EnCorps is poised to recruit STEM professionals who are interested in transitioning to education. Our Fellows program provides support at all steps of the way, laying the path for great STEM knowledge to reach the workforce of tomorrow. 98% of EnCorps Teachers agree that the EnCorps STEM Teachers Program® helped prepare them to become teachers, and 97% agree they are well-prepared to teach STEM subjects (EnCorps, 2023).

It's imperative that industry professionals moving into careers in education are provided with the support they need to translate their wealth of experience into successful classroom practice. As we look to expand our CTE workforce, retention will be reliant on educators' understanding elements of education work such as classroom management and engaging with youth. Coordination between school districts and non-profit organizations can bridge this gap.

## **Make a career in CTE appealing, aligned and accessible**

A Brookings Institute report suggests that supporting professionals to access classrooms, straddling their professional career with education, can support a smooth transition into the teaching workforce ([Brookings, 2024](#)).

Classrooms are starkly different to the perception held by many outside of education. That is why, at EnCorps, we facilitate pathways into teaching which provide volunteer guest teaching experience to STEM professionals interested in making the transition so that they can understand the reality of an education career.

Navigating the bureaucratic requirements to enter a career in teaching can be burdensome, particularly for professionals in already demanding careers. We need to reduce the complexity of this process and provide guidance and support for those considering the transition.

There is further work to be done to ensure that teaching careers are appealing, particularly to those with high earning potential in their respective fields.



# Create a fairer CTE system through equity of program design and delivery

California's CTE Model Curriculum Standards ([California Department for Education, 2025](#)) are a great place to start, and the state's commitment to approving programs and offering support through consultants supports many providers. However, there is more that can be done.

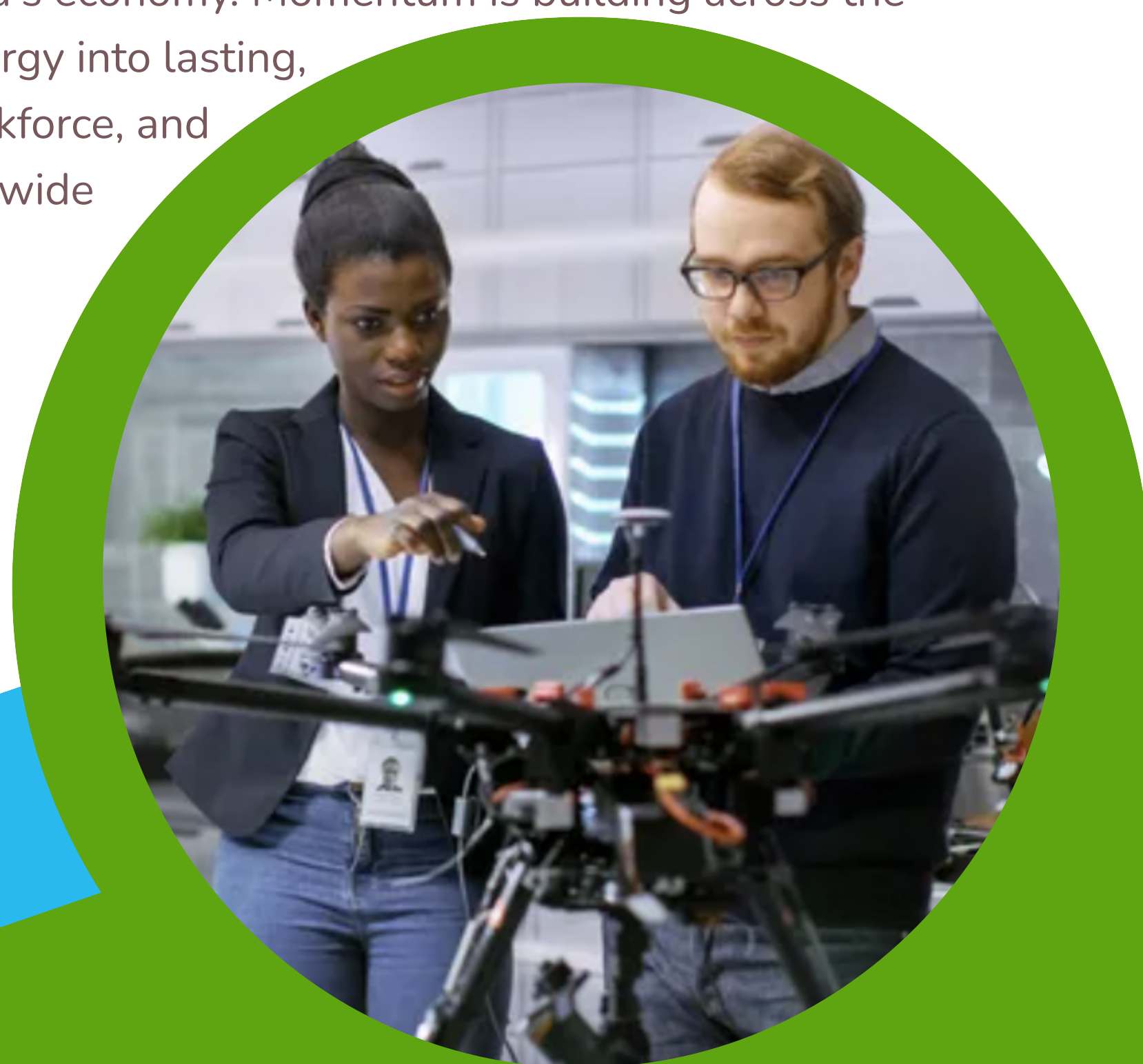
Expanding the presence of motivated STEM educators who have experience in the field and are equipped to bridge the gap between STEM industry and students can play a role in driving up quality for all.

We are calling for coordination and collaboration of CTE efforts across the state. Connecting non-profit organizations, school districts and business can facilitate the meaningful advocacy and development of CTE for all.

## The time for Career and Technical Education is now.

We've seen the powerful benefits that strong CTE programs bring-to students ([CTE Research Network 2024](#)), to industries, and to California's economy. Momentum is building across the state, and now is the moment to turn that energy into lasting, meaningful change. For our students, our workforce, and our future, let's commit to making CTE a statewide priority.

Here at EnCorps, we are ready to support the effort to grow sustainable, rewarding CTE across California. Through our EnCorps STEM Teachers Program ®, we are recruiting STEM professionals into education by:



- Providing personalized support for STEM professionals transitioning to teaching to overcome specific barriers.
- Offering thoughtful training to support STEM professionals with education blind spots such as classroom management and student engagement.
- Arranging substantial exposure to classroom teaching via Volunteer Guest Teaching Placements in partner schools to provide meaningful experience.
- Guiding professionals through the complex system of certification and credentialing to reduce bureaucratic burden.

The impact of the program plays a role in supporting the growth of our CTE system in California by:

- Increasing the pipeline of prepared, motivated and highly qualified STEM professionals in our CTE classrooms.
- Providing school districts with industry experts who can shape their partnerships and curricula to improve the quality of their CTE programs.
- Improving equitable access and diversity by recruiting STEM professionals widely from varied industries, backgrounds and life experiences.





# An EnCorps Fellows Story

Mohamed Zoweil, based in Orange County, California, is a software engineer by trade. He enjoyed his role at Google, though there was something missing for him. His interest in education was sparked back in 2019, when he joined the Microsoft Technology Education and Learning Support (TEALS) program and got to teach computer science to students in underserved communities. After thriving in this rewarding program, education remained on his mind.

He began to take steps towards the education space, moving his software expertise to a startup that designed tech tools for teachers in 2021. From here, the idea of getting into the classroom himself began to take root, and he contacted EnCorps on LinkedIn in 2024.



Mohamed joined the EnCorps STEM Teachers Program to join an AP Computer Science Principles class at Estancia High School in Costa Mesa. The support he received from the EnCorps team and his placement school empowered him to grow as an educator. Having worked in companies throughout his career, the jump to middle school classes was a challenge, but the flexible, step-by-step approach of the EnCorps program allowed him to develop at his own pace. The most valuable aspect, in Mohamed's view, was feedback from EnCorps observers and his mentor, which helped him to reflect and make changes that supercharged his lessons. Reviewing his classroom practice alongside the professional development package meant that pedagogical ideas made sense and could be acted on in real time.



After the program, Mohamed secured a position teaching robotics at Vista Heritage Global Academy, where he further developed his skills as an educator. As of June 2025, he has opened his own robotics teaching business called Spark Lab, aiming to balance a role as a business owner with a part-time teaching job in local schools in the future.

Through our EnCorps STEM Teachers Program ® , we continue to support qualified STEM professionals across the state to transition into a rewarding career in education.

To target CTE specifically, we are also partnering with LAUSD to deliver the LAUSD New CTE Teacher Training Program, which provides paid individualized support and professional development to CTE teachers during their first one to two years in the teaching profession. By providing new CTE teachers with the support and guidance of a mentor teacher, LAUSD believes this will greatly impact teachers' instruction and the quality of education for students enrolled in CTE programs, with the goal of helping them become workforce-ready.

**"Working with EnCorps has helped in boosting confidence..."**  
**- Esther Dabagyan, LAUSD CTE and Linked Learning Administrator**

This program is already seeing beneficial outcomes, with 90% of teachers agreeing that the program had improved their teaching confidence and developed their pedagogical skills.

## How did the LAUSD New CTE Teacher Training Program help you?

\*'These regular check-ins provided consistent guidance, accountability, and opportunities to reflect on my teaching practices. They allowed me to address challenges in real-time, receive feedback, and collaborate on solutions with my mentor.'

\*'Collaborating with my mentor supported my professional development by giving me a reliable source of feedback, encouragement, and practical strategies tailored to my classroom needs.'

Connect with EnCorps by visiting our website or connecting with us on [LinkedIn](#) or [Instagram](#).





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