

Preparing Students for the Green Careers of the Future

Across the country, AFT-member school districts are making investments in career and technical education to prepare students for green jobs that transition us away from fossil fuels and build a more sustainable economy. For example, thanks to advocacy by the Peoria Federation of Teachers in Illinois, the Peoria school district has created a two-year renewable energy training program. When the district installed solar panels on the roof of Woodruff Career and Technical Center, CTE program coordinators integrated the process into the curriculum to provide students with experience in solar installation and energy use monitoring.

In Rio Rancho, N.M., the school district moved its auto mechanics programs to a new state-of-the-art CTE campus where students gain experience and credit toward an automotive mechanic credential while working on the district's electric vehicles. The Rio Rancho School Employees Union helped connect school administrators with other New

Mexico labor unions to gain access to resources to support the new CTE programming.

AFT affiliates are encouraging states to do their part as well. The state of Connecticut, for example, has made an investment in sustainable and safe careers by providing students with access to OSHA 10 and OSHA 30 certifications along their CTE pathway. And in Pennsylvania, a coalition of education, transportation and government officials are designing a new green energy transportation pathway that will allow students in middle school to gain certifications and experience in electrical transportation construction while working on new green energy train lines that will be added to the Amtrak and PennDOT systems.

What follows is a set of principles for establishing CTE programs in K-12 schools and colleges, with guidance on integrating training components for the green careers of the future.

Best Practices for Career and Technical Education

Understanding the best practices for CTE programs is essential for enhancing student outcomes and aligning education with industry needs. These practices help schools to ensure that students gain relevant skills, to improve equity and access, and to support career exploration. Additionally, well-designed CTE programs

contribute to economic growth by producing a skilled workforce and continuously adapting to changes in technology and industry standards. By focusing on best practices, educators can create successful programs that benefit students, industries and communities alike.

Supporting CTE Teachers

CTE teachers come from diverse backgrounds, including teachers of STEM subjects and former industry employees. To effectively teach a CTE program, educators need effective support systems to prepare students for their

transition to the workforce. This includes ongoing professional development to stay current with industry trends, access to up-to-date teaching resources specifically for the classroom, and mentorship programs to guide new

educators. High-level specification of teaching career pathways requires additional compensation, provided by either the school administration or participating industries. By providing these supports and opportunities, we can ensure that CTE teachers are well-equipped to deliver high-quality education and meet the evolving needs of both students and industries.

K-12 School Exposure

Many students in K-12 schools are not exposed to CTE career pathways or apprenticeship opportunities. K-12 schools can help students understand career and technical pathways by integrating career exploration activities into the school's curriculum, offering hands-on learning experiences and providing access to career counseling for students as early as elementary school. Schools can develop partnerships with local businesses and industries to offer internships, job shadowing and mentorship programs. They can also provide career counselors and advisors with professional development to learn about CTE career pathways specifically available in the local workforce, and they can organize career fairs to expose students to various career options and the skills required for them. By implementing these strategies, schools can guide students in making informed decisions about their future careers.

Industry and Education Working Together

Industry and education collaboration is key to creating successful CTE programs that provide students the skills required to meet workforce needs. CTE teachers, industry professionals and school administrators have built successful partnerships by piloting CTE programs or implementing up-to-date industry standards within existing programs. This strategy allows CTE teachers to adapt existing program curriculum to meet students' academic knowledge. Building on these academic foundations,

Hands-On Learning

Hands-on learning emphasizes the importance of practical experience combined with strong academic support. By integrating hands-on demonstrations, such as using industry equipment like a tape measure or HVAC system, students have an opportunity to test out equipment and

Internships

Integrating internships into a CTE program is essential for providing students with real-world experience for a specific career pathway. Internships allow students to apply class-

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industry partners can provide valuable resources such as internships, mentorships or employment upon program completion to provide students with competitive workforce skills. Partners that have proven to be the most successful in building sustainable employment opportunities include trade unions and local workforce boards. Together, they can prepare students for in-demand careers, fostering a skilled and adaptable future workforce.

learn valuable skills. Another area of support for students is to provide additional academic support, particularly in math and digital literacy, to ensure they have the foundational skills necessary for success in CTE pathways.

room knowledge in a professional setting while enhancing their understanding and readiness. Unfortunately, too many internship opportunities limit participation to stu-

dents who are 18 or older or who already possess certain credentials; those kinds of barriers should be removed in order to ensure maximum participation. Dual enrollment programs are highly beneficial for CTE students, as they allow students to earn college credits while in high school.

Microcredentials

Integrating microcredentials through CTE programs allows students to gain recognition for specific skills and competencies. These short, competency-based certifications give students a competitive edge in the hiring pro-

This not only accelerates their educational journey but also reduces the overall cost of postsecondary education. These programs often provide access to advanced facilities and resources not available in a high school CTE program.

cess for CTE career pathways. Common microcredentials include OSHA 10, OSHA 30, CompTIA+, food and safety sanitation, and CNC machine operation.

Preparing Students for the Jobs of the Future in Green Energy

Preparing students for green energy career pathways through CTE involves incorporating exposure to common careers in the industry, such as heat pump technician, solar panel installer and wind turbine technician. Green energy careers require students to possess problem-solving, adaptability and project management skills when entering the fastest-growing energy sector to contribute to a sustainable future. Investing in establishing green

energy CTE programs in K-12 schools will provide students with practice and an opportunity to use essential work-based learning skills before entering employment. Setting established pipelines with trade unions, contractors and employers will assist students in finding employment opportunities upon graduation from CTE programs.