

CTE and College and Career Ready Standards:

Preparing Students for Further Education and Careers

National Association of State Directors of Career Technical Education Consortium (NASDCTE^c)

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Only a few decades ago, schools and institutions generally tracked students into one of two paths: college or career. Today, the nation appears to be at a tipping point of unanimity that all students must be prepared for further education and careers. Hence, the primary goal of NASDCTE^c's vision paper, *Reflect, Transform, Lead: A Vision for Career Technical Education (CTE)*ⁱ, commits to supporting and expanding career technical education (CTE) to prepare students for success in both further education and careers.

These new expectations consequently require us to develop new standards that reflect our interest in preparing students in both areas. Central to achieving this goal is the availability and implementation of personalized learning plans, support for the *Common Core State Standards (CCSS)*ⁱⁱ and increased rigor of CTE programs that meet high national common technical core standards and are aligned to the CCSS.

While the CCSS provide a thoughtful framework for academic coursework, the standards do not fully address the critical “career” component of a student’s overall experience. To thoroughly prepare students for college and career, schools must integrate or align technical standards with the CCSS. Cohesive implementation of the standards would produce the optimal result – high school students who are well prepared for postsecondary education and careers.

By addressing this gap in the CCSS, CTE programs and students will be held to consistent technical and academic standards, maximizing the opportunity for student success. This issue brief provides examples from a state agency and an industry partner that have closed this gap by building resources.

Kansas: Blended Career and Academic Assessments

Kansas adopted the CCSS in October 2010 and has updated its CTE education agenda to include alignment of the new academic-focused standards. To prepare for its transition to the CCSS, the Kansas State



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Department of Education (KSDE) contracted WestEd, a nonprofit research agency, to conduct a descriptive analysis to examine the common elements between the [Career Clusters Essential Knowledge and Skills Statements](#)ⁱⁱⁱ and the CCSS. The report provided the state with information to help coordinate and implement the CCSS with its CTE standards.

[WestEd’s analysis involved a high-level review of materials to identify overlap and to refine the protocol used for the analysis.](#) The analysis also included a more in-depth review of the connections between the CCSS and Career Cluster Essential Knowledge and Skills Statements. Overall, WestEd found that the CCSS and the Essential Knowledge and Skills Statements align in English/language arts at the secondary level. Core academic skills are exercised in reading, writing, speaking and listening as applied to information and informational or technical texts. Further, in mathematics areas including general mathematical practice standards, data use and representation, and measurement, substantial overlap exists between the CCSS and the Essential Knowledge and Skills Statements.

The standards that are not aligned include core skills in reading as applied to literary or historical texts and in writing as applied to narrative or argumentative texts.

Recommendations gleaned from the report include:

- Clearly define the operational definition and intent of the standards (both academic and technical)
- Define the relationship between the CCSS and CTE
- Specify the application of a skill to a specific workplace context or purpose, the context of the problem at hand, tools to be used, and/or the conceptual area addressed
- Further examine the data associated with this study and determine whether and how collections of related matched standards can be clustered and used

[In addition to its descriptive analysis study, KSDE aims to provide students with a more authentic educational experience by integrating career and academic standards and assessments within a framework of 21st Century Skills.](#) To accomplish this end, the agency plans to focus on the following:

- Creating end-of-pathway assessments that are industry-recognized and aligned with the CCSS
- Administering blended student assessments at the summative level to meet requirements for the Elementary and Secondary Education Act, state accountability, and industry-recognized credentials; other assessment components include: performance events, portfolios, project-based scoring rubrics, or work-based experiences (e.g., internships, apprenticeships)



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- Providing each student with a performance level judgment and certification in five tested content areas and one Career Cluster
- Using 21st Century Learner Profiles to connect higher order constructs between content areas and the Career Clusters
- Articulating standards, benchmarks, indicators/competencies vertically across grades, and horizontally through the Career Clusters

Additionally, KSDE links Kansas’ standards to databases that include student achievement data, instructional resources and student demographics. In collaboration with its stakeholders, KSDE identifies connections between academic standards, CTE pathways, and 21st Century Learner Profiles to capture in this database. The WestEd study confirms the viability of these links. The resulting system provides various assessment tools, suggestions for instructional decisions, and information on multiple initiatives targeting school improvement. [The broader goal is to increase student engagement in the learning process with greater support and opportunity for teachers to alter and improve instructional practices.](#)

Cisco’s Networking Academy: An Integrated Framework

Business and industry have also been making strides toward infusing college- and career-ready standards. [Cisco’s Networking Academy^{iv}](#) is a technology education program delivered through secondary and postsecondary education institutions.

Networking Academy curricula are designed to equip students for post-secondary and career readiness by providing academic knowledge and career-ready skills. This is accomplished through the coursework and real-world problem-solving activities, including lab simulation modules and interactive games with a focus on developing entrepreneurial skills.

Years before the launch of the CCSS, Cisco led alignment work between their Networking Academy standards and state standards. In 2007, Cisco discontinued its state level database to focus their efforts on aligning their academy standards to national academic standards. Since the unveiling of the CCSS, Cisco has created a framework for its Networking Academy to integrate and align the CTE-related components of its programs with the CCSS.

[An essential next step for Cisco involved aligning its curricula to Career Clusters Knowledge and Skills Statements, the CCSS, the 21st Century Skills Initiative and IT certification standards.](#) To accomplish this, Cisco identified alignment between the STEM Career Cluster Knowledge and Skills Statements and the CCSS. Specific examples were presented from chapters within Networking Academy coursework to demonstrate successful implementation of the standards.

North Carolina Public Schools have embraced rigorous Networking Academy curriculum by offering select CTE courses for honors [credit](#)^v. To further support opportunities for student success, the schools promote pathways leading to postsecondary education and certificates, as well as statewide articulation agreements for up to four college credits between the state's high schools and community colleges.

Instructors, administrators, and state and federal education agencies may find Cisco's tools valuable for monitoring and documenting students' knowledge and skills development and ensuring that lesson plans meet industry-validated standards. Not only does the framework provide a practical model for identifying alignment of CTE technical standards with the CCSS, but it also makes it easier to offer concurrent academic and CTE credit, proves the academic rigor required of technical careers, and justifies maintaining these courses when the focus in many schools is solely on academic achievement.

Conclusion

To prepare for future jobs in high-skill, high-wage, high-demand fields, CTE students must graduate high school with purposeful knowledge and skills. While the CCSS present a solid foundation for academic instruction, more work must be done regarding the standards that prepare students to be career-ready. Current and upcoming efforts to integrate technical standards with the CCSS, such as Kansas' descriptive analysis study and the Cisco integrated framework, are a step forward in promoting college and career ready standards for all students.

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- i Reflect, Transform, Lead: A New Vision for Career Technical Education, available at: http://www.careertech.org/show/new_vision
 - ii The Common Core State Standards, available at: <http://www.corestandards.org/the-standards>
 - iii The National Career Clusters' Framework serve as a starting point for building a comparable consistent set of industry-validated Knowledge and Skills Statements (or standards), that outline both overall and specific skills that students will need for success in their chosen Career Cluster and pathway. The revalidation of these standards and their transformation to national common technical core, aligned to the CCSS is underway and will be unveiled in June 2012. The National Career Clusters' Framework is available at: <http://www.careerclusters.org/>
 - iv Cisco Networking Academy, available at: <http://www.cisco.com/web/learning/netacad/index.html>
 - v Cisco Networking Academy, North Carolina Public Schools: Credit/Articulation/Pathways, available at: <http://www.cisco.com/web/learning/netacad/us-can/docs/US-NC-public-schools-2008.pdf>