

CAREER & TECH EDUCATION

IN GREATER KANSAS CITY

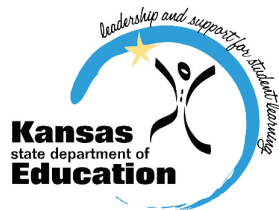


*Preparing High School
Students for the Next Step*

This report was created in response to community demand for information about Career & Tech Education and ways to develop workplace competencies beginning in grades K-12. It presents a snapshot of regional CTE in the Kansas City metropolitan area.

We hope it will spark conversation that will help catalyze a collaborative, regional effort to improve communication between the business and education sectors, share lessons learned, and coordinate support for innovative approaches for all students. As we move forward on this important issue, we will continue to engage educators, industry leaders and communities to ensure every student is prepared for life, learning and work after high school.

FUNDERS & PARTNERS





Why Career & Tech Education?

Because high school alone is no longer enough.

Good jobs — those that pay an above-average wage and offer an opportunity to move up — require more than a high school diploma. Employers want job-ready workers who have something extra. That might be an industry-recognized credential, some on-the-job experience, a certificate or a degree.

Career tech education, or CTE, gives students a leg up on the path to success by providing that something extra while they are still in high school. CTE prepares students for what's next, whether they are on the path to college or ready to start their first job (or, increasingly, do both at the same time).

CTE programs use an authentic learning model that lets students apply what they learn in real world situations. It aligns classroom and experiential learning with labor market demands. It provides students with the technical and academic skills they need to succeed on the job or at the next level of education.

Today's CTE is not the "vo-tech" education of past decades. It is innovative, relevant, and increasingly in demand by parents and students across the nation. With CTE, students are positioned to make informed choices about their next steps toward a rewarding and satisfying career.

This report examines current CTE programs at high schools in the Greater Kansas City metropolitan area and provides examples of local and national best practices in CTE.

93%

of students who take a concentration of CTE courses graduate from high school, about 10 percent higher than the national average for all students.

75%

go on to enroll in postsecondary education after graduation.

50%

of CTE learners are enrolled in programs in leading fields like health care, IT and STEM.

45%

of students say CTE courses provide real world examples that help them better understand academic classes.

Source: www.careertech.org

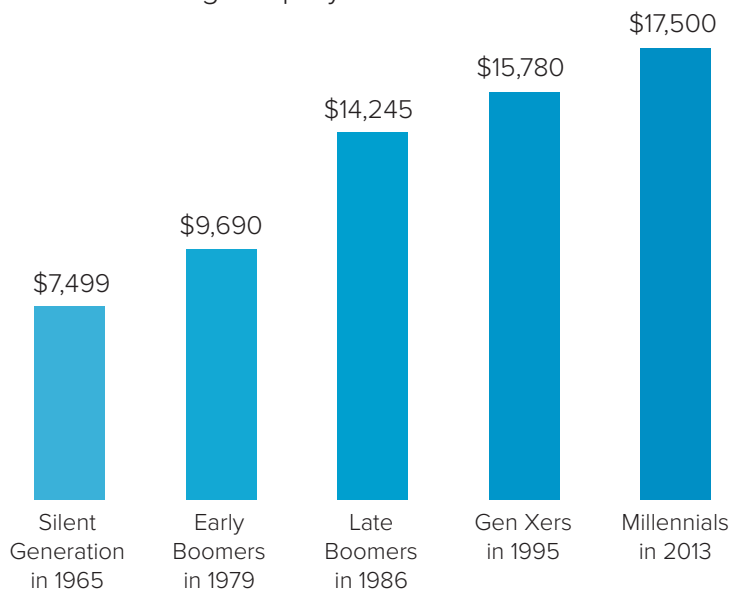
The earnings gap is growing wider.

There are clear economic and employment benefits to education beyond a high school diploma. College grads consistently do better than those with less education, and a 2014 Pew Research Center report found that the earnings gap between the two groups is growing wider.

Today, millennials with a high school diploma can expect to earn just 62 percent of what the typical college graduate earns, compared to 77 percent for the baby boomer generation. The chart shows the difference in median annual earnings of college and high school graduates when members of each generation were ages 25 to 32.

The Growing Cost of Not Going to College

Annual Earnings Gap by Generation

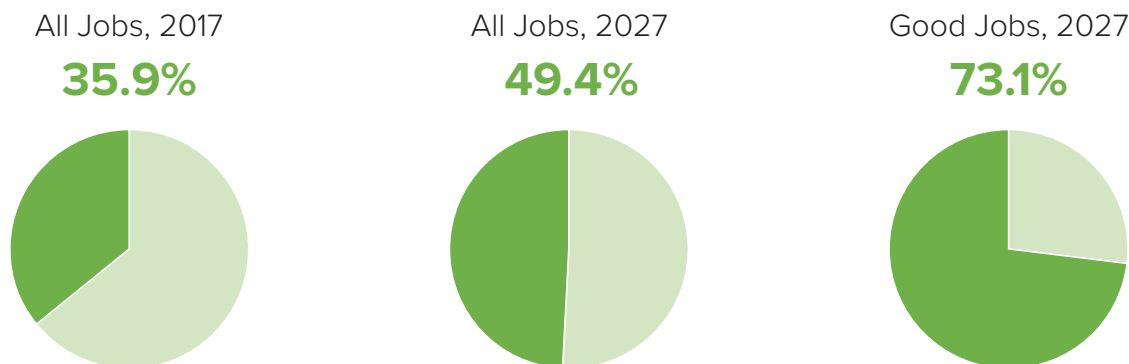


Source: www.pewsocialtrends.org

More jobs require postsecondary credentials.

In the Kansas City region, employers are increasingly likely to require postsecondary education when hiring. Currently, about 36 percent of all jobs in the region require postsecondary education. Over the next 10 years, that number is expected to rise to almost 50 percent. The growth is even more dramatic for jobs that pay an above average wage. By 2027, three out of four of these jobs will require postsecondary education.

Percent of Jobs Requiring an Associate Degree or Higher | Kansas City MSA



Source: *Jobs EQ*

CTE provides students with market value assets.

Students who leave high school with just a diploma have a significant disadvantage compared to their peers who leave with a diploma *plus* market value assets.

A market value asset is defined as an industry-valued and recognized skill acquired in high school that fosters a more seamless transition from school to postsecondary education and/or the workplace.

Students who acquire market value assets, typically through participation in CTE programming, are more likely to enroll and complete either degree- or non-degree-bearing postsecondary education or training. Market value assets make further education and training — and ultimately a career — more affordable and more attainable.

Ideally, experiences that lead to market value assets should be available to ALL students at the high school level. Currently, almost every school district in the region offers some kind of career readiness training, but CTE programming is not available at scale. For too many students, high school leads to graduation, but does not provide a seamless transition.



Market Value Assets

- ✓ **COLLEGE CREDIT** earned while in high school
- ✓ **INDUSTRY-RECOGNIZED CREDENTIALS**
- ✓ **CAREER EXPERIENCES** such as robust job shadowing and internships
- ✓ **ENTREPRENEURIAL EXPERIENCES** with real-world projects tied to job expectations

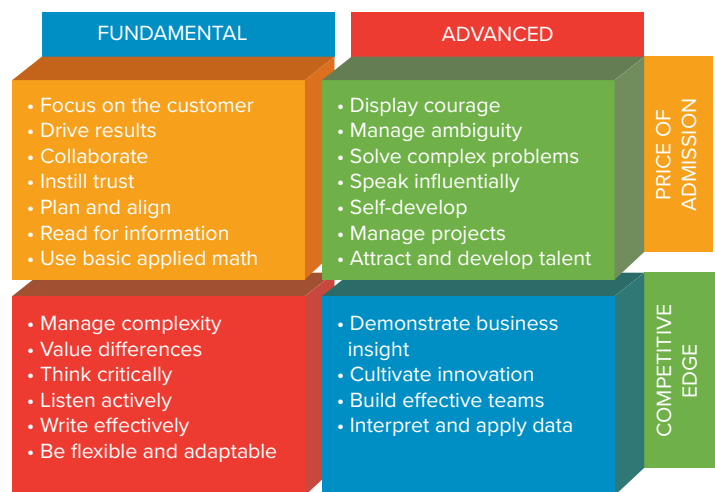
CTE helps develop competencies employers need.

Employers often assume that higher-level credentials, such as a bachelor's degree, are a proxy for critical thinking skills and other common core competencies they expect to find in job-ready individuals.

The authentic learning techniques used in CTE can help students achieve many of these core competencies while also learning sector-specific technical skills necessary for entry-level employment.

For more information about competencies, see MARC's Common Sector Competencies report online at kcworkforce.org/reports.htm.

COMMON SECTOR COMPETENCIES MODEL





Current Status of CTE

Federal funding is limited and it varies by state and school district.

The Carl D. Perkins Career and Technical Education Act, first authorized in 1984 and renewed in 2006, is the primary funding mechanism for career and technical education programs across the nation.

Under the Perkins Act, states receive a funding allotment determined by a grant formula. Once state allotments have been calculated, they are compared with legal floors and caps (minimum and maximum funding amounts) to arrive at each state's final allocation.

States establish their own processes and formulas for distributing Perkins funding to school districts. Local districts determine how to spend these funds within the limits of required and permissive uses outlined in the Perkins Act. Funds are typically used for salary reimbursement and less often for equipment purchases.

Perkins funding has been significantly reduced in recent years, at the same time demand for a skilled workforce is growing. Many school districts are developing their own creative solutions to meet this funding challenge, which leads to variations in approach, student participation, and the types and quality of programs.

A bipartisan effort is currently underway to reauthorize the Perkins Act. In 2017, the U.S. House of Representatives unanimously passed HR 2353, the Strengthen Career and Technical Education for the 21st Century Act, which would give states more flexibility to use federal funds, increase focus on high-demand jobs, reduce administrative burdens and strengthen participation of underserved students. To date, the Senate has not acted on a Perkins reauthorization bill.

FY 2016 PERKINS ALLOCATIONS

KANSAS

STATEWIDE: \$3,918,869

264 school districts
149,328 high school students
Average \$26.24 per student

KC METRO: \$1,926,416

18 school districts
42,150 high school students
Average \$45.70 per student

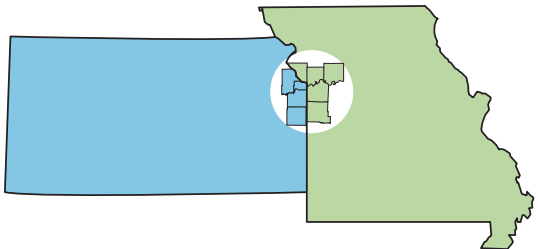
MISSOURI

STATEWIDE: \$13,963,217

448 school districts
267,868 high school students
Average \$52.12 per student

KC METRO: \$2,568,633

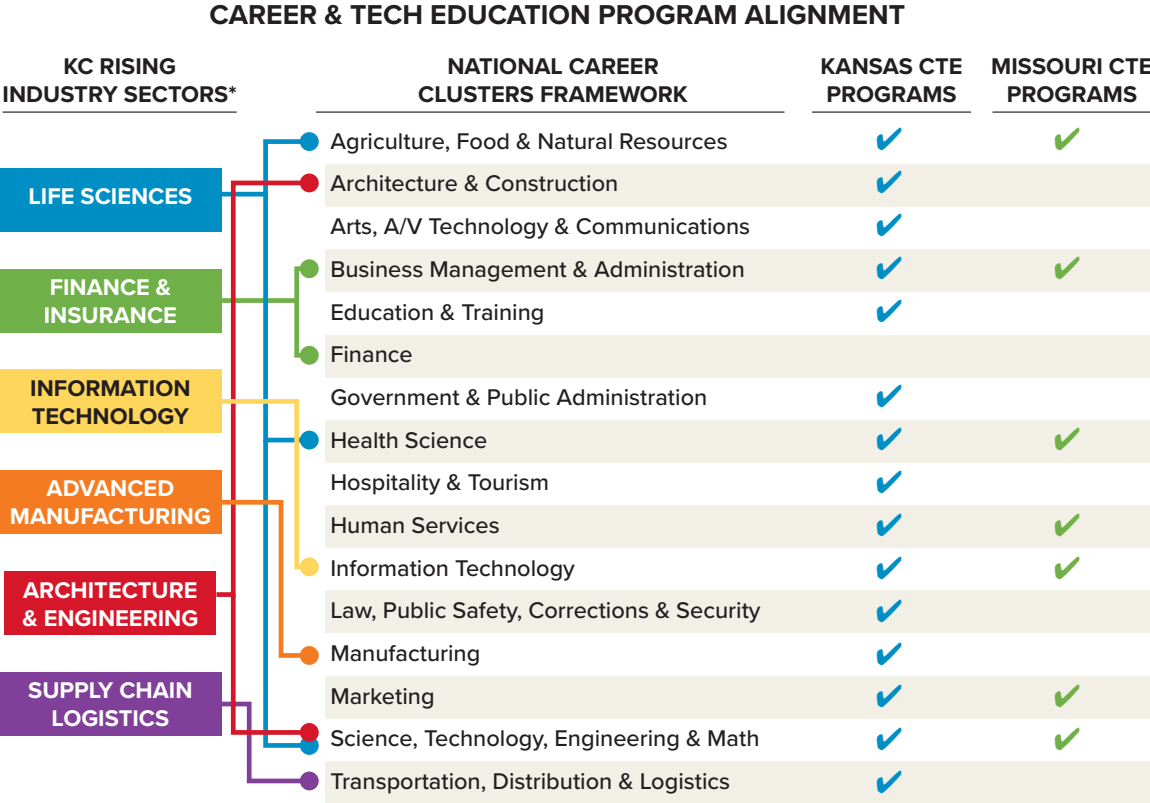
33 school districts
51,860 high school students
Average \$49.53 per student



Current systems for engagement are inefficient.

Business engagement is essential to create relevant and authentic learning experiences for students and teachers. Early engagement with higher education is also important in making a successful transition from high school to college. Currently, there is no centralized system to connect students to experiential learning opportunities, resulting in an inefficient duplication of efforts across the region. This also makes it difficult for students, parents and counselors to understand the wide variety of CTE options available and navigate a rapidly changing landscape. There is a need for more intentional collaboration among employers and educational leaders (K-12 and postsecondary) to create a system that facilitates seamless transition from high school to life, learning and work.

KC Rising is a business-led initiative focused on increasing the Kansas City region’s global economic competitiveness, with a focus on three key economic drivers: trade, ideas and people. Through its Human Capital Workgroup, KC Rising seeks to align educational opportunities with employer needs in industry sectors that are particularly important to the regional economy. The chart below illustrates the alignment of those sectors with CTE programs.



Data and definitions are inconsistent.

Area school districts report data on career education programs to the Kansas State Department of Education (KSDE) and Missouri Department of Elementary & Secondary Education (DESE). The data reported does not fully capture enrollment in what would be broadly considered career education. Many districts only report CTE data on programs that are eligible for state reimbursement. As a result, education programs that don’t meet state criteria, have never been submitted for formal CTE recognition by the states, or are supported with local funding are not included in state data.

In addition, the categorization of programs differs by state. Kansas has adopted the National Career Clusters Framework of 16 career clusters, while Missouri uses six program areas. The two states also use different definitions to categorize student participation in CTE, as outlined in the following pages.

Missouri CTE Overview

Operated by the Missouri Department of Elementary and Secondary Education (DESE), Career and Technical Education in Missouri includes six program areas:

1. Agricultural Education
2. Business
3. Marketing & Information Technology Education
4. Family Consumer Sciences & Human Services Education
5. Health Sciences
6. Technology & Engineering Education



APPLICATION PROCESS

School districts may apply to establish new programs under any of these six areas. Business and industry leaders are involved at the local level to provide input on program creation and operations, serve on advisory committees, provide work-based learning opportunities and assist with Career & Technical Student Organization (CTSO) activities and competitions.

School districts with approved CTE programs may be eligible for federal funding through the Perkins Act. Each district or a consortium of schools that offers four of six CTE program areas is eligible for funding. The minimum allocation is \$15,000. There is no additional funding for exceeding the minimum eligibility.

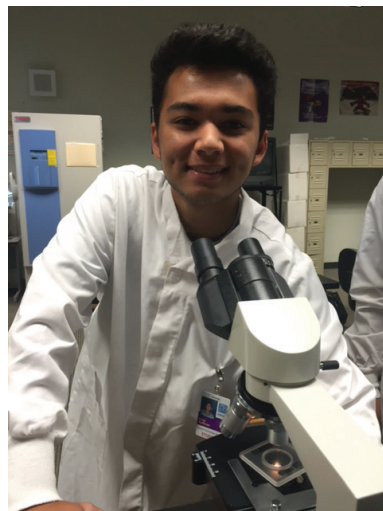
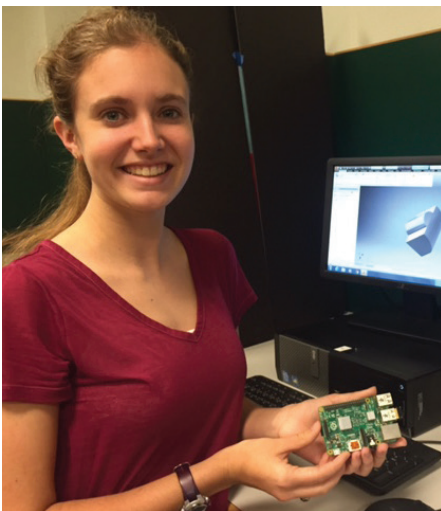
NOTE:

There are some well-regarded programs in Missouri (such as Northland CAPS) that have not officially sought approval to be recognized as career education by DESE. As a result, students participating in these programs are not counted in the state data used in this report.

Some programs may choose not to go through the state application process because Perkins Act requirements could limit innovation and flexibility.

REVIEW AND EVALUATION

Missouri is instituting a new process for review and evaluation of CTE programs using Common Criteria and Quality Indicators developed by the state's Office of College and Career Readiness. The criteria — Programs of Study, Curriculum, Instruction, Assessment, Career and Technical Student Organizations, and Program Management and Planning — along with their supporting quality indicators, are designed



to provide guidance and direction to local school districts in establishing, maintaining, and evaluating quality career education programs.

CERTIFICATE REQUIREMENTS

Beginning in the 2017-2018 school year students have the option of earning a CTE certificate in addition to a high school diploma. The requirements for a CTE Certificate are as follows:

1. Meet typical graduation requirements set forth in state and local board of education policies.
2. Qualify as a career and technical education concentrator. A concentrator is defined as a student who has earned three or more credits in a sequence in any department-approved career education program area as defined on the student's personal plan of study.
3. Maintain a minimum GPA of 3.0 on a 4.0 scale in the area of concentration.
4. Pass an approved Technical Skills Assessment (TSA) and/or earn an approved Industry-Recognized Credential or Certificate (IRC) aligned with the student's area of concentration.
5. Complete a minimum of 50 hours of appropriate work-based learning experiences aligned with the student's area of concentration. Work-based learning experiences may include Registered Apprenticeships, Cooperative Career Education programs, internships, structured business/industry field trips, service learning or other opportunities that provide students with real-time authentic work experiences.
6. Maintain at least a 95% attendance record overall for grades 9-12.
7. Demonstrate attainment of soft-skills/business skills. The requirement can be met in one of three ways:
 - a. Active participation in a Career and Technical Student Organization during the junior or senior year.
 - b. Score at proficient or advanced level on a district-developed or adopted soft-skills/ethics assessment during the junior and/or senior year.
 - c. Three or more letters of recommendation from at least three different business or industry employers or other individuals who have knowledge of the student and can assure that the student has a high level of soft-skill efficacy and is career ready. Letters may not be from a relative of students.
8. Achieve a score at or above the state standard on any department-approved measure(s) of college and career readiness, for example, the ACT, SAT, ACT-WorkKeys, or the Armed Services Vocational Aptitude Battery as determined in the most current MSIP performance standards.

Schools are expected to support student efforts to accomplish these requirements through the development and monitoring of individual plans of study based on a career pathway.

FOLLOW-UP AFTER GRADUATION

Students are followed up on 180 days after graduation. CTE performance funding is available based on the 180-day follow-up. Criteria is based on whether the student is in a job related to the area of concentration, in education related to their training, or if they have joined the military.

For more information: <https://dese.mo.gov>

Missouri CTE Data

The following charts and table show CTE data for school districts in the Kansas City metro area. Percents shown for participants, concentrators and completers are calculated as a share of the district's total high school enrollment.

Missouri defines participants, concentrators and completers as follows:

- **Participant** — A secondary student who has earned one or more credits in any DESE-approved career education program area.
- **Concentrator** — A secondary student who has earned three or more credits in a sequence in any DESE-approved career education program area, but has not yet graduated from high school.
- **Completer** — A secondary student who has met the concentrator requirement and has graduated from high school.

As noted previously, this data only includes CTE programs that have applied to the state for CTE program designation. DESE encourages all districts to report data in the future for a more accurate picture of career education participation.

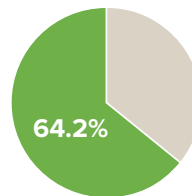
Some initial observations about the data: A high percentage of high school students are participating in CTE programs, but only a small portion of these students complete. Urban and rural students are more likely to complete than suburban students, and the reasons for this disparity should be explored. In Missouri, one explanation for high participation rates is that a required personal finance course is counted as CTE. Connecting more CTE courses to graduation requirements could lead to higher participation.

2016-2017 DATA

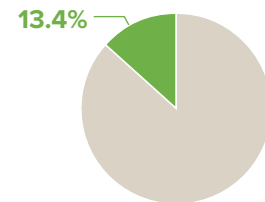
ALL MISSOURI-SIDE METRO SCHOOL DISTRICTS

CTE participants and completers as a share of total high school enrollment

PARTICIPANTS

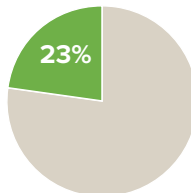
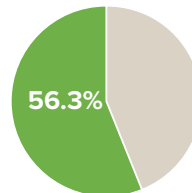


COMPLETERS



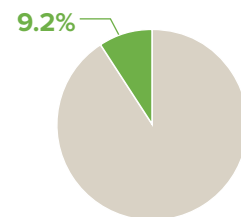
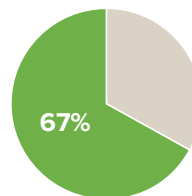
URBAN* SCHOOL DISTRICTS

Includes Center, Grandview, Hickman Mills, Kansas City and Raytown.



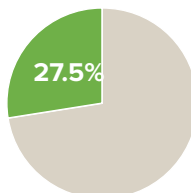
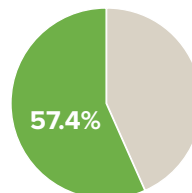
SUBURBAN* SCHOOL DISTRICTS

Includes Belton, Blue Springs, Excelsior Springs, Fort Osage, Grain Valley, Independence, Kearney, Lee's Summit, Liberty, North Kansas City, Park Hill, Platte County, Raymore-Peculiar and Smithville.



RURAL* SCHOOL DISTRICTS

Includes Archie, Drexel, Hardin-Central, Harrisonville, Lawson, Lone Jack, Midway, North Platte, Oak Grove, Orrick, Pleasant Hill, Richmond, Sherwood and West Platte.



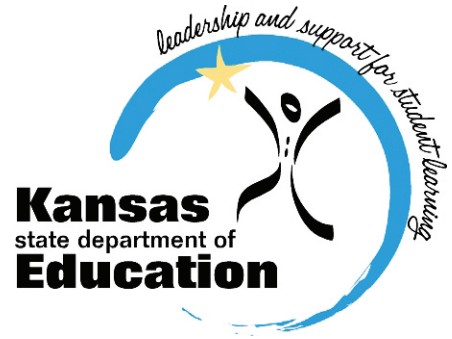
* School districts are informally categorized for this report based on geography and population.

A review of data reported by district clearly illustrates the need for a better, more integrated tracking system. For example, the North Kansas City and Park Hill school districts are part of the strong Northland CAPS program, but state data lists less than 3 percent completion rates for both. These figures lead to questions about what is being counted and reported. A comprehensive data collection system is needed to document the full depth and breadth of CTE opportunities available to students.

School District	Total High School Enrollment	Participants	Completers		
Archie R-V	183	140	76.5%	82	44.8%
Belton 124	1,372	1,050	76.5%	989	72.1%
Blue Springs R-IV	4,549	3,465	76.2%	550	12.1%
Center 58	693	499	72.0%	41	5.9%
Drexel R-IV	102	40	39.2%	11	10.8%
Excelsior Springs 40	984	341	34.7%	67	6.8%
Fort Osage R-I	1,409	882	62.6%	109	7.7%
Grain Valley R-V	1,225	959	78.3%	86	7.0%
Grandview C-4	1,238	921	74.4%	754	60.9%
Hardin-Central C-2	62	52	83.9%	31	50.0%
Harrisonville R-IX	843	477	56.6%	407	48.3%
Hickman Mills C-1	1,411	1,134	80.4%	52	3.7%
Independence 30	4,114	3,318	80.7%	184	4.5%
Kansas City 33	3,858	1,350	35.0%	1,164	30.2%
Kearney R-I	1210	843	69.7%	90	7.4%
Lawson R-XIV	381	82	21.5%	47	12.3%
Lee's Summit R-VII	5,774	4,016	69.6%	604	10.5%
Liberty 53	3,557	2,301	64.7%	210	5.9%
Lone Jack C-6	198	129	65.2%	25	12.6%
Midway R-I	149	104	69.8%	48	32.2%
North Kansas City 74	5,853	3,471	59.3%	157	2.7%
North Platte County R-I	171	131	76.6%	27	15.8%
Oak Grove R-VI	645	229	35.5%	263	40.8%
Orrick R-XI	97	82	84.5%	25	25.8%
Park Hill	3,565	2,034	57.1%	86	2.4%
Platte County R-III	1,155	632	54.7%	157	13.6%
Pleasant Hill R-III	669	447	66.8%	109	16.3%
Raymore-Peculiar R-II	1,921	1,332	69.3%	101	5.3%
Raytown C-2	2,745	1,691	61.6%	281	10.2%
Richmond R-XVI	477	297	62.3%	51	10.7%
Sherwood Cass R-VIII	236	196	83.1%	63	26.7%
Smithville R-II	837	513	61.3%	76	9.1%
West Platte County R-II	177	113	63.8%	18	10.2%
MO METRO TOTAL	51,860	33,271	64.2%	6,965	13.4%

Kansas CTE Overview

Operated by the Kansas State Department of Education (KSDE), Career and Technical Education in Kansas uses the National Career Clusters model of 16 career clusters (listed on page 7) and has developed 35 career pathways within these clusters.



APPLICATION PROCESS

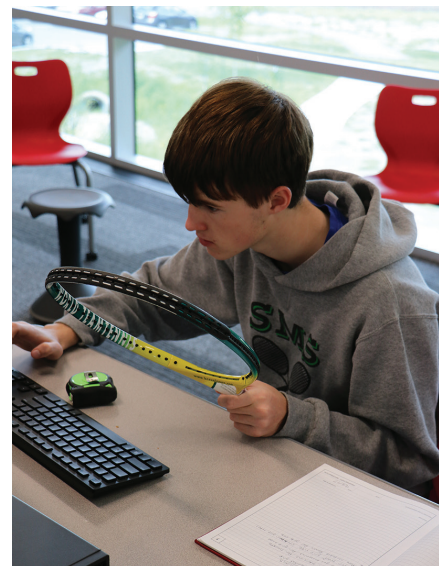
KSDE has an established process for creation or deletion of pathways, and provides school districts with an online checklist for the creation of new pathways. Each year, the submission process runs from November 15 to March 15. Common criteria for application includes:

- Creation of an advisory committee. The committee must have at least three business/industry representative members, one of whom is designated to serve as chair in a leadership role. An individual member can serve on multiple pathways, but a single committee cannot serve multiple pathways.
- The advisory committee is required to meet twice a year. At each meeting, the committee must review the pathway, course competencies, equipment, and instructional materials. In addition, the committee will review specific pathway data and develop plans within the Three-Year Pathway Improvement Plan.
- New applications must have initial goals (for one year) and at least one meeting with an advisory committee. The advisory committee should have at least one meeting, with the purpose of identifying three-year goals for the pathway.

STATE FUNDING

In addition to Perkins formula funding, SB155 allocates a reimbursement to schools every time a student earns a certification in a recognized high-need area. High-need areas are determined by the state and updated annually by the Department of Labor. The current reimbursement rate is approximately \$35 per student.

This reimbursement structure may affect what CTE data is reported to KSDE. State officials note that districts often only report on participation that qualifies for the reimbursement. However, the state would prefer that all participants be reported, not just those that align with the reimbursement structure.





MEASURING SUCCESS

After Dr. Randy Watson took office as the Kansas Commissioner of Education in July 2015, he went on a statewide listening tour. As a result of this statewide tour, a new component of measuring student success was added to the state program. The commissioner aspires to have 70 percent of students who complete a high school diploma in Kansas continue on to a two-year, four-year or technical school. This is aligned with the Kansas Board of Regents' Foresight 2020 goals to increase higher education attainment among Kansans. Current data shows that 55 percent of high school graduates statewide make it to their second year of postsecondary attainment.

In response to this newly adopted measure of student success, KSDE has purchased access to National Student Clearinghouse data on behalf of every school district in the state. KSDE provides schools this data three times per year in order to monitor progress. Data is provided to the public through the Kansas Report Card, online at ksde.org, and can be sorted by state or district totals.

For more information: www.ksde.org

Kansas CTE Data

The following charts and table show CTE data for school districts in the Kansas City metro area. Percents shown for participants, concentrators and completers are calculated as a share of the district's total high school enrollment.

Kansas updated its definitions for participants, concentrators and completers for the 2017-2018 school year. The new definitions are as follows:

- **Participant** — A student earning a least 0.5 credit of any CTE course in a state-approved pathway.
- **Concentrator** — a student earning at least 2.0 credits of CTE courses in the same state-approved pathway plus 70-percent proficiency on local technical skill measures, or passing a third-party, technical skill assessment or earning an industry-recognized certificate.
 - » The 2.0 credits must be a combination of CTE courses from at least two of the three levels (introductory, technical or application) in the same state-approved pathway
 - » Technical Skills Measures for Concentrators can be:
 1. Average of CTE course letter grades earned OR
 2. Average percentage of CTE end-of-course assessments or projects OR
 3. Average percentage of CTE course competencies profile ratings OR
 4. Third-party assessments or industry-recognized certifications
 - » Concentrator technical skill measures must be kept locally, in an electronic file, for five years after the concentrator graduates
- **Completer** — A student earning at least 3.0 credits of CTE courses in the same state-approved pathway plus earning an industry-recognized, comprehensive certification or passing a third-party, end-of-pathway assessment.
 - » The 3.0 credits must include at least 2.0 credits that are a combination of technical and application level courses.
 - » A list of Technical Skills Measures for completers is available online at www.ksde.org.

NOTES ABOUT KANSAS DATA:

The latest CTE data available for Kansas is for the 2015-16 school year. At that time, Kansas combined the concentrator and completer categories in what is now called completer. Therefore there is no available data for the group called concentrators under the definition above.

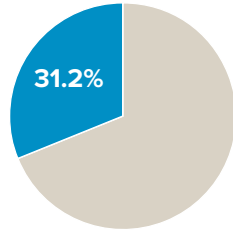
Kansas bases its counts for participants and completers on enrollment in pathway courses. Because multiple pathways may contain some of the same courses, there is duplication in the count. As a result, participants often exceed total enrollment in the following table.

Because some school districts only report CTE data for programs eligible for Perkins or SB155 funding, programs funded through other sources may be underreported.

Kansas completion rates may appear higher than Missouri, which is likely due in part to duplication in the state reporting system described previously. The district level data above demonstrates the variability of these figures across districts. For instance, under current methods of counting the school districts in Blue Valley, Olathe, and Kansas City, Kansas, all of which are known for their exemplary career education programs, show a lower completion rate than Bonner Springs. As with Missouri, this raises questions about how the data is counted and reported.

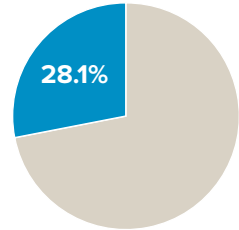
COMPLETERS AS A SHARE OF TOTAL HIGH SCHOOL ENROLLMENT

ALL KANSAS-SIDE METRO SCHOOL DISTRICTS



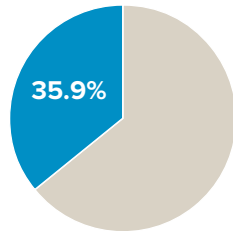
URBAN* SCHOOL DISTRICTS

Includes Kansas City, Shawnee Mission and Turner.



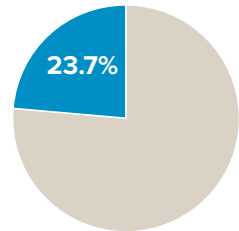
SUBURBAN* SCHOOL DISTRICTS

Includes Basehor-Linwood, Blue Valley, Bonner Springs, De Soto, Olathe and Piper.



RURAL* SCHOOL DISTRICTS

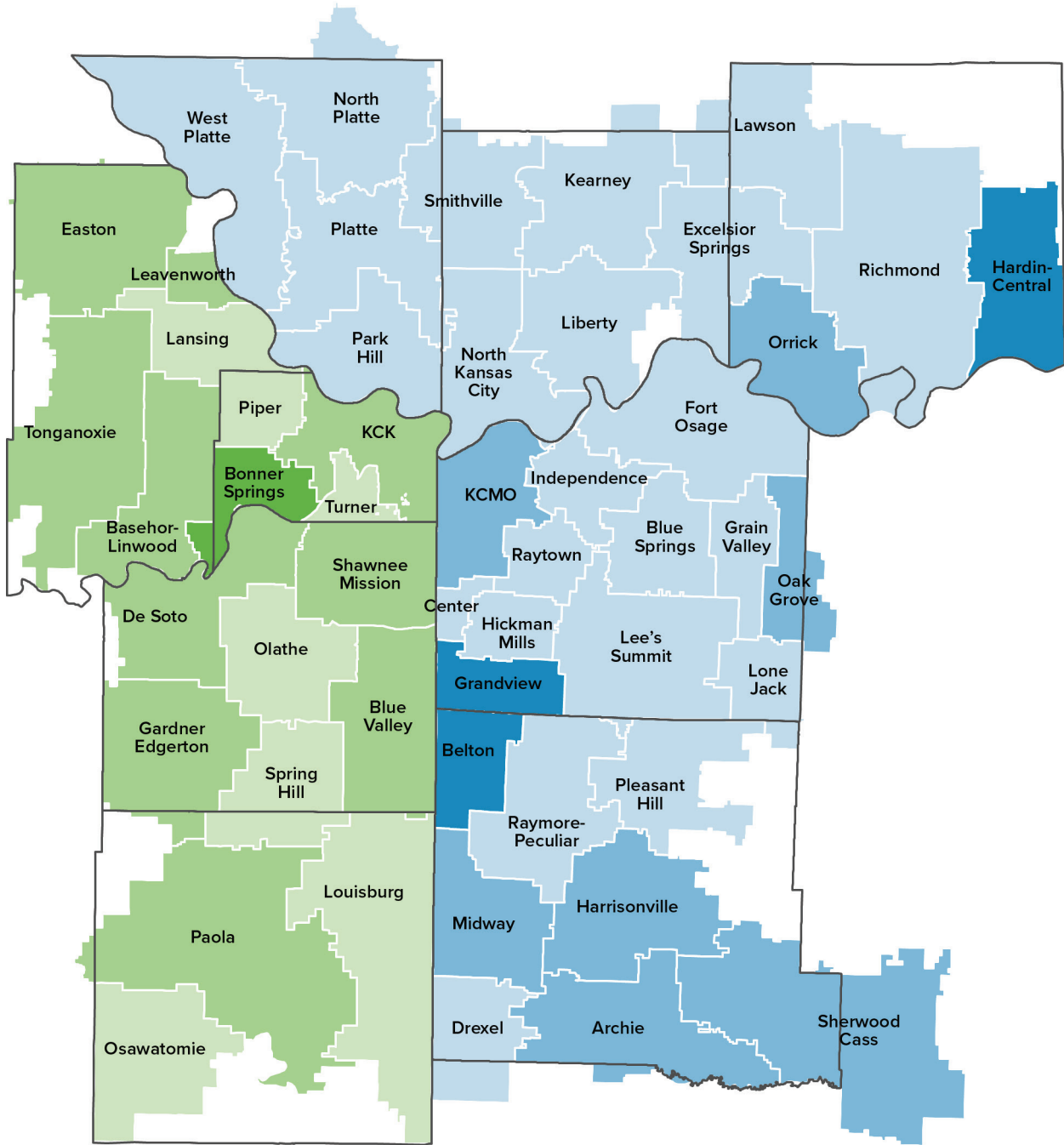
Includes Easton, Gardner-Edgerton, Lansing, Leavenworth, Louisburg, Osawatomie, Paola, Spring Hill and Tonganoxie.



* School districts are informally categorized for this report based on geography and population density.

School District	Total High School Enrollment	Participants	Completers	Completers as Share of Enrollment
Basehor-Linwood #458	813	1,018	358	44.0%
Blue Valley #229	7,507	10,397	3,388	45.1%
Bonner Springs #204	818	1,651	1,196	146.2%
De Soto #232	2,130	1,313	612	28.7%
Easton #449	224	148	60	26.8%
Gardner Edgerton #231	1,520	1,807	649	42.7%
Kansas City, Kansas #500	5,477	6,400	1,896	34.6%
Lansing #469	931	916	116	12.5%
Leavenworth #453	1,318	975	325	24.7%
Louisburg #416	546	45	5	0.9%
Olathe #233	8,491	11,920	1,728	20.4%
Osawatomie #367	377	15	5	1.3%
Paola #368	650	683	251	38.6%
Piper #203	582	1,092	25	4.3%
Shawnee Mission #512	8,405	10,834	2,189	26.0%
Spring Hill #230	657	598	63	9.6%
Tonganoxie #464	623	544	151	24.2%
Turner #202	1,081	781	123	11.4%
KS METRO TOTAL	42,150	51,137	13,140	31.2%

CTE Completers as a Percent of High School Enrollment



KANSAS

- 50% or more
- 25 to 49%
- Less than 25%

MISSOURI

- 50% or more
- 25 to 49%
- Less than 25%

Based on data supplied by MoDESE and KSDE. As noted previously, the two states use different CTE definitions and there are limitations to the data collected. See pages 8-15 for details. Only districts with high schools are shown on the map.



Best Practices in Career & Tech Education

The Kansas City region is home to a number of well-known and well-regarded Career & Tech Education programs. Some began years ago as traditional vo-tech programs and have been successfully reinvented into 21st century learning environments, while others have emerged more recently. Some of the best-known programs include:

- **Summit Technology Academy (STA)** offers 16 STEM-related programs to high school juniors and seniors from 14 school districts. sta.lsr7.org
- **Missouri Innovation Campus** provides STA students with paid internships and college credits, making it possible to earn a bachelor's degree two years after high school. www.ucmo.edu/mic
- **Northland CAPS** immerses juniors and seniors from seven school districts in high-demand career fields, with no minimum GPA for admission. www.northlandcaps.org
- **Blue Valley CAPS** offers programs in six high-demand fields to juniors and seniors in the Blue Valley School District. bvcaps.yourcapsnetwork.org
- **Liberty Public Schools** uses a K-12 approach, including an elementary school program and an academy for at-risk high school students. acs-lps-ca.schoolloop.com/aboutus
- **Shawnee Mission School District** recently opened a new center for its Signature Programs in specialized areas of study that prepare students for college and careers. signature.smsd.org
- **CristoRey**, a Catholic college prep school, offers an innovative corporate work-study program through partnerships with 120 area businesses. www.cristoreykc.org/about
- **PREP-KC** partners with six urban school districts, engaging students in career academies and experiential learning in key industry sectors. www.prepkc.org
- **KC STEM Alliance** inspires interest in STEM fields through nationally recognized Project Lead the Way and KC First Robotics programs. www.kcstem.org

The following pages highlight eight programs selected as best practices after an extensive review of local and national programs. The local programs (1-4) were chosen as examples of comprehensive and systemic practices within school districts, where the entire district has embraced cultural change that impacts all students. The national programs (5-8) highlight innovative models and practices that help reduce fragmentation and redundancy and make it easy for business to engage in authentic learning experiences that prepare students for career and college success.

1. Olathe Public Schools — 21st Century Academies
2. Kansas City Kansas Public Schools — Diploma +
3. Independence School District — Wall-to-Wall Academies
4. Excelsior Springs School District — Reimagine High School
5. Indiana — Sector Partnerships
6. South Carolina — Registered Apprenticeships
7. Denver Public Schools — Youth CareerConnect
8. Illinois Township District 214 — Redefining Ready!

1. Olathe Public Schools — 21st Century Academies

In 2003, Olathe Public Schools redefined high school education by launching 21st Century Programs for four in-demand careers: Aerospace and Engineering, eCommunication, Geoscience (originally known as Earth Science Frontiers), and Biotechnology/Life Sciences. Today, Olathe offers 15 four-year 21st Century Academies with specialized course work and authentic learning opportunities. Students in the district choose a pathway meaningful to them.

Olathe Public Schools provides three different models of CTE programming: Comprehensive High School, two-year CTE programming for juniors and seniors, and the four-year 21st Century Academies.

Specific academies are located in the five high schools and the district provides transportation. Each high school hosts two to five academies. Through the 21st Century Academies, students have the opportunity to earn market-value assets prior to graduation. Each academy offers:

- Technical skill development.
- Specialized coursework for a four-year plan of study.
- Industry-standard resources and equipment.
- Industry-recognized certification.
- Professional experiences all four years.
- Special real-world opportunities: competitions, field trips, volunteer hours, senior projects, internships, special events and experiences enriched by many partners.

Career planning, interest inventories and exploration begin in sixth grade and are documented using Career Cruising™. In eighth grade, all students participate in a Career EXPO held at Johnson County Community College. Endorsements that are earned through the course of study can be included on the students' graduation transcript.

BEST PRACTICES

- **Professional Learning** — Students participate in professional learning throughout the four years of high school, including working with and conducting research alongside professionals; observing medical/hospital procedures, and developing/implementing community workshops. This helps put skills like math and science in context.
- **Employability Skills** — Students learn, practice and receive feedback on eight essential employability skills. These skills are viewed as transferable across industries, regardless of a student's specific academy.
- **Industry Engagement** — Industry experts are engaged to inform instructional materials, projects, and specific curriculum standards related to the field of study. They also present to classes as guest speakers, provide content for class projects, and are sites for internship and externship opportunities.



2017–2018 Academies

Animal Health
BIOengineering
Business/Finance
Civic Leadership
Computer Science
Design
Distinguished Scholars
eCommunication
Engineering
Future Educators
GeoScience
Green Tech
Medical Professions
Public Safety
Sports Medicine & Exercise Science

<http://schools.olatheschools.com/buildings/21stcentury>

2. Kansas City Kansas Public Schools — Diploma+

In 2013, the Kansas City Kansas Public School district joined the Coalition of Innovative School Districts. As one of seven Kansas districts in the Coalition, KCKPS is able to pursue policies and practices that ensure each student graduates with a high school diploma plus one or more endorsements aligned to postsecondary success.

The district determined the following endorsements, when paired with a high school diploma, place students on the path to high-skill, high-wage, high-demand careers in the metropolitan area and beyond.

- Completion of at least one full year of college (18-30 credit hours).
- Completion of an industry-recognized credential or certificate.
- Score of at least 21 on the ACT or 1060 on the SAT.
- Acceptance in to the military (Armed Services Vocational Aptitude Battery).
- Completion of a qualified internship or industry-approved project.
- Approved plan for postsecondary transition.
- Completion of the International Baccalaureate Diploma Programme or International Baccalaureate Career-Related Programme.

To meet the needs of Diploma+ at the high school level, the district is transitioning to college and career academies, each of which has an industry and career focus, linked to either pathways into college, completion of industry-recognized credentials and certificates, or immediate entrance into the workforce. KCKPS identified its college and career academies with input from business and civic leaders, KC Rising, parents and students.

While in middle school, students set goals and visit industries and college campuses throughout the metro. All students enter an academy during their sophomore years. The academy selection process includes students and their families, working with counselors, college and career coordinators and academy advisors.

BEST PRACTICES

- **Individual Student Dashboards** — Each student has an individualized plan of study, called a dashboard, beginning in sixth grade. Through the dashboard, students track goals, grades, assessment performance and special accomplishments. The individual plan of study helps students identify their talents and aspirations for the future.
- **Teaching Fellows** — In partnership with Pittsburgh State University, the district has brought back the Teaching Fellows program, which allows KCKPS to certify industry experts as classroom teachers with no cost to the teaching candidate.



2017–2018 Academies

Health Sciences
Advanced Manufacturing,
Transportation and Logistics
Engineering, Architecture, and
Construction
Information Technology
Business and Finance
Human and Public Services
International Baccalaureate
Programmes

Certification Opportunities

Early Childhood Education
Auto Collision
Welding
Certified Nursing Assistant
Certified Medical Assistant
Health Educator
Computer Support Specialist
Auto Technology
ServSafe Food Handler
Construction Technician
First Aid
CPR
Certified Office Assistant
Culinary Arts
Pharmacy Technician

3. Independence School District — Wall-to-Wall Academies

In 2013, the Independence School District was invited to partner with Ford Next Generation Learning, the educational arm of the Ford Motor Company Foundation, to develop and implement the career academy concept. Three years later, the Independence School District fully implemented “wall-to-wall academies” in its three high schools. By the 2016-2017 school year, full implementation of five academies was completed.

All ninth graders participate in the Freshman Academy, which encourages students to take three to five introductory courses to help them complete their ‘exit ticket’ to the academy they will join in their sophomore year.

The academies were chosen based on Kansas City economic and workforce indicators and with the involvement of community and business partners. Within the academies, there are 32 pathways that meet specific criteria:

- Pathways are driven by current workforce development data that indicates high-demand, high-wage work within the Kansas City region.
- Pathways allow students access to dual credit course work, where they can earn up to 45 college credit hours while still in high school.
- Pathways provide student access to an industry-recognized credential that aligns to entry-level job skills.

BEST PRACTICES

- **Teacher Development** — professional development for all teachers begins with a full week of induction training, with highly effective teaming, project-based learning, and an externship opportunity. Ongoing professional development includes weekly collaboration among teams of teachers in each academy to deepen their project-based learning skillset and improve curriculum alignment with industry, and two-day “Project-Based Learning 2.0” training sessions.
- **Curriculum Alignment** — Existing high school courses that did not meet pathway criteria were eliminated from the high school course offerings. Academy courses make up four blocks in an eight-block day. Core graduation courses are embedded into one of the blocks to help students achieve all of their core credentials.



Public Services Academy

Pre-Law
Political Science
Social Services
Safety
Leadership

STEM Academy

Aviation
Pre-Med
Pre-Nursing
Pre-Physical Therapy
Engineering
Computer Networking & Systems
Programming & Software Development

Arts & Education Academy

Digital Media Production
K-12 Education
Early Education
Theatre Production

Business Academy

Marketing & Business Management
Accounting/Finance
Culinary
Fashion & Design
Cosmetology
Hospitality & Tourism Management

Industrial Technology Academy

Construction
Manufacturing
Computer Integrated Machining & Mfg.
Welding
Automotive
Engineering Technology (Drafting)
Industrial Technology (Hydraulics)

http://sites.isdschools.org/career_academies

4. Excelsior Springs School District — Reimagine High School

In 2016, teachers and administrators at Excelsior Springs High School committed to disrupting the current education system and challenging the status quo to reimagine the high school experience. A viewing of the “Most Likely to Succeed” documentary with staff, students, and parents helped jump start the process.

The redesign, called “Reimagine HS,” is supported by the New Tech Network, a leading design partner for comprehensive school change. New Tech Network schools take the student learning experience to the next level to impact academic achievement, foster positive life outcomes, and fully prepare students for the next level of learning in an unknown world. New Tech Network provides Excelsior Springs High School with access to an international network of more than 200 innovative schools.

The district is transforming the traditional high school model by instituting creative use of time (flex-mod scheduling) and fluid use of space (teachers take the learning to the students, not just a classroom), and embarking on building integrated, interdisciplinary courses that support authentic, project-based, personalized learning to harness the power of collaboration and student responsibility.

Administrators and teachers are working with New Tech Network consultants to create systemic school change and design new interdisciplinary, team-taught coursework. Additionally, the staff has received training in project-based learning methodologies through the Buck Institute. PACE School Network was used to develop a flex-mod schedule and automate to a master high school schedule.

BEST PRACTICE

Use of Existing State Waivers — Using the current “Graduation Handbook: Requirements for Students in Missouri Public Schools,” the Excelsior Springs Reimagine HS model has received permission from the Missouri Department of Elementary and Secondary Education to:

1. Embed core academic or state-required content into courses and/or CTE courses/programs.
2. Use proficiency-based methods to demonstrate mastery of competencies in each course to award graduation credit.

These waivers allow high school students to have autonomy over their time, place and pace of learning.



Reimagine HS Outcomes

Increased student achievement in state scores.

Increased parent engagement as measured by attendance at conferences, Back to School events, etc.

Increased parent satisfaction survey data representing perception of education quality.

Increased graduation and attendance rates.

Increased ACT scores.

Increased percentage of students enrolling in trade schools, two- and four-year colleges.

5. Indiana — Sector Partnerships

In 2013, Indiana created the Indiana Career Council, made up of state agency heads and representatives from business, industry and community organizations. The ICC developed a data-driven, sector-based approach that directly aligns education and training with the needs of Indiana’s regional economies. Through sector partnerships, state and regional partners have introduced workforce development strategies that demonstrate a measurable return on investment and are responsive to industry needs. Indiana’s sector partnerships are market-driven, work interdependently across systems (K-12, higher education and industry) and work with industries collectively rather than individual businesses. Each sector partnership includes a convener, industry partners and system partners.

One example of a sector partnership in the Life Sciences industry is OrthoWorx — a community-based partnership in Warsaw, Indiana, that works with schools and universities to provide educational opportunities across the spectrum that meet the orthopedic industry’s needs. Orthoworx engages students early on, helping them transition into meaningful careers and providing opportunities to keep learning after college.

Formed in 2009 with initial funding from Lilly Endowment Inc., OrthoWorx works strategically and collaboratively with the orthopedic industry, other life sciences partners and regional stakeholders to ensure the Warsaw region continues to reap social and economic benefits from its position as The Orthopedic Capital of the World®.

OrthoWorx supports the orthopedic cluster in Warsaw, Indiana, and the surrounding area. The cluster represents nearly 45 percent of Kosciusko County’s employment — nearly 13,000 total jobs and unequalled concentration of medical device industry jobs.

BEST PRACTICE

Strong Partnerships — Sector partners keep the partnership strong through:

- STEM and experiential education in grades K–12.
- Workforce development for secondary and technical schools.
- Marketing and branding campaign to engage college students with programs and internships.
- Expanding and improving the effectiveness of experiential learning projects.
- Developing and/or modifying curriculum with academic members.
- Professional development and curriculum for cooperative education students, interns and young professionals.
- Engagement with academic partners through faculty projects and workshops.



Industry Members and Strategic Partners

- K-12 Education
- Adult Basic Education
- Community Colleges
- Universities
- Community-Based Organizations
- Human Services Organizations
- Organized Labor
- Workforce Boards
- Economic Development Organizations
- Industry Representatives



6. South Carolina — Registered Apprenticeships

South Carolina offers a comprehensive workforce solution custom-designed to meet employers' needs through internationally renowned programs — readySC™ and Apprenticeship Carolina™ — along with a robust technical college system. Apprenticeship Carolina is a division of the South Carolina Technical College System and works to ensure all employers in South Carolina have access to the information and technical assistance they need to create demand-driven registered apprenticeship programs. At no cost to the employer, apprenticeship consultants are available to guide companies through the registered apprenticeship development process, from initial information to full recognition in the national Registered Apprenticeship System.

South Carolina's high school students have the opportunity to participate in a youth apprenticeship program. The program combines high school curriculum and career and technology training with critical on-the-job training at a local business. Students earn paychecks through part-time work while earning national credentials within high-demand occupations.

Employers create recruitment pipelines, decrease costly turnover, and have the opportunity to influence the training of future employees. In addition, a registered program makes the business eligible to receive a \$1,000 per-apprentice South Carolina state income tax credit.

The Youth Apprenticeship Program results in high school students leaving with a diploma, technical college dual credit, a Department of Labor credential or other applicable credentials.

BEST PRACTICE

Earn-While-You-Learn Model — Apprenticeships are an “earn while you learn” training model that combines structured on-the-job training (OJT), job-related education (JRE), and a scalable wage progression. Apprenticeships are offered in targeted industry clusters: advanced manufacturing, construction technologies, information technology, energy, tourism, health care and transportation/distribution/logistics.



Youth Apprenticeship Process

Identify Partners

Education partners and/or Apprenticeship Carolina™ identifies business partners and occupations of interest



Meetings

Meetings with business are held to determine OJT, JRE, wage schedule and apprentice selection process



Qualified Candidates

Education partner advises students/parents of opportunity and identifies qualified candidates



Applications

Employer ready to hire youth apprentices contacts education partner to collect applications



Interview

Employer interviews and hires student for youth apprenticeship



Training

Student begins OJT and JRE (JRE can be technical college dual credit courses)



Graduate

Student graduates with high school diploma, DOL credential or other applicable credentials



Career Skills

Youth apprenticeship completers can continue with adult apprenticeship, be hired full time with business, or have skills for a successful career

7. Denver Public Schools — Youth CareerConnect

Denver Public School (DPS) provides a variety of supports and services for students and their families, not only on their path to graduation, but also to ensure their success in a globally connected, knowledge-based economy. Starting with the Class of 2021, students will need to complete three key requirements to earn diplomas:

- Planning for the future through the Individual Career and Academic Plan.
- 24 units of course credit in required areas.
- Competency demonstrations in English and math through college and career assessments (ACT/SAT), a professional portfolio of authentic work to show mastery of the standards, or attainment of an approved industry-recognized certification.

Through the DPS CareerConnect initiative, students receive industry exposure and tangible connections to college and careers in high-growth, high-opportunity fields. More than 18,000 students participate in DPS CareerConnect, and more than 500 students will complete 100-120 hour internships through CareerLaunch in the 2017-18 school year. Historically, DPS CareerConnect students are 30 percent more likely to graduate than their peers.

DPS received nearly \$7 million from the federal Youth CareerConnect grant program to create and expand STEM pathways in eight schools. Students participate in paid internships or job shadowing and complete a capstone project that demonstrates how they applied the skills and knowledge learned in the classroom to their workplace-based learning experience. DPS also works with workforce investment partners to provide career fairs and summer industry academies.

DPS CareerConnect offers engaging, hands-on, project-based courses and experiential learning opportunities in relevant career pathways. Students take introductory courses early in high school and advance to more specialized classes in their industry of choice, graduating with college credit, industry experience, and invaluable soft skills.

BEST PRACTICE

Scalability — DPS CareerConnect is designed to scale in grades K–12 throughout the district’s 183 schools. DPS has built multiple entry points for community and business partners to be involved in expansive work-based learning opportunities.



DENVER PUBLIC SCHOOLS
CAREERCONNECT

BusinessConnect

Focusing on marketing, finance or business management

CreativeConnect

Focusing on graphic design, theater, music and multimedia

EdConnect

Focusing on early childhood education, teaching and curriculum design

EngineeringConnect

Focusing on engineering

HospitalityConnect

Focusing on culinary arts and hospitality

MakerConnect

Focusing on advanced manufacturing, construction and skilled trades

MedConnect

Focusing on health care, sports medicine, biomedicine and public health

PublicSafetyConnect

Focusing on law enforcement, criminal justice and fire safety

TechConnect

Focusing on robotics, software engineering and web design

ACEConnect

Focusing on students with disabilities or special needs

8. Illinois Township District 214 — Redefining Ready!

Township High School District 214 in Arlington Heights is the second-largest high school district in Illinois, serving more than 12,000 students from eight communities. District 214 has aligned with the national Redefining Ready! campaign, a multi-metric approach that helps students become college ready, career ready and life ready.

District 214's Career Pathways program provides all students with rigorous academic courses, access to early college credits and industry certification, and personalized and career-specific learning experiences. All students use the district's career pathways booklet — which aligns curriculum, extra-curricular opportunities, and external career learning experiences to career clusters— as a roadmap to begin self-identifying and preparing for their postsecondary goals.

The career pathways program guarantees that all students choose one of the 16 nationally recognized career clusters (see page 7) by the end of their sophomore year. Students receive hands-on workplace learning experiences that enable them to explore their career interests while still in high school. Students in District 214 graduate with a diploma-plus: external experiences, early college credits and career credentials.

District 214 works closely with more than 900 business partners, who drive and enhance teaching and learning, offer internships to students, and work in classrooms with students as speakers and mentors. Career pathways stay on the cutting edge due to the daily contact with industry partners, who keep teachers and students up to date on trends and demands to ensure student success. These partnerships have led to the creation of in-school, industry-standard health care labs and CNA training, college certifications before high school graduation; state- of-the-art manufacturing laboratories; and a first-of-its-kind nanotechnology laboratory filled with equipment typically found in research institutions.

BEST PRACTICES

- **Tracking Indicators** — The district uses a Redefining Ready! report card to track College-Ready Indicators, which include academic and standardized testing benchmarks, and Career-Ready Indicators, which include identifying a career interest and meeting behavioral and experiential benchmarks.
- **Education Partnerships** — District 214 has developed deep higher education partnerships to provide crucial early college credits. Harper College, National Louis University, and Northeastern Illinois University partner to provide no-debt, low-cost college opportunities for students pursuing a variety of specific credentials.



College Ready Indicators

College Level Courses + GPA

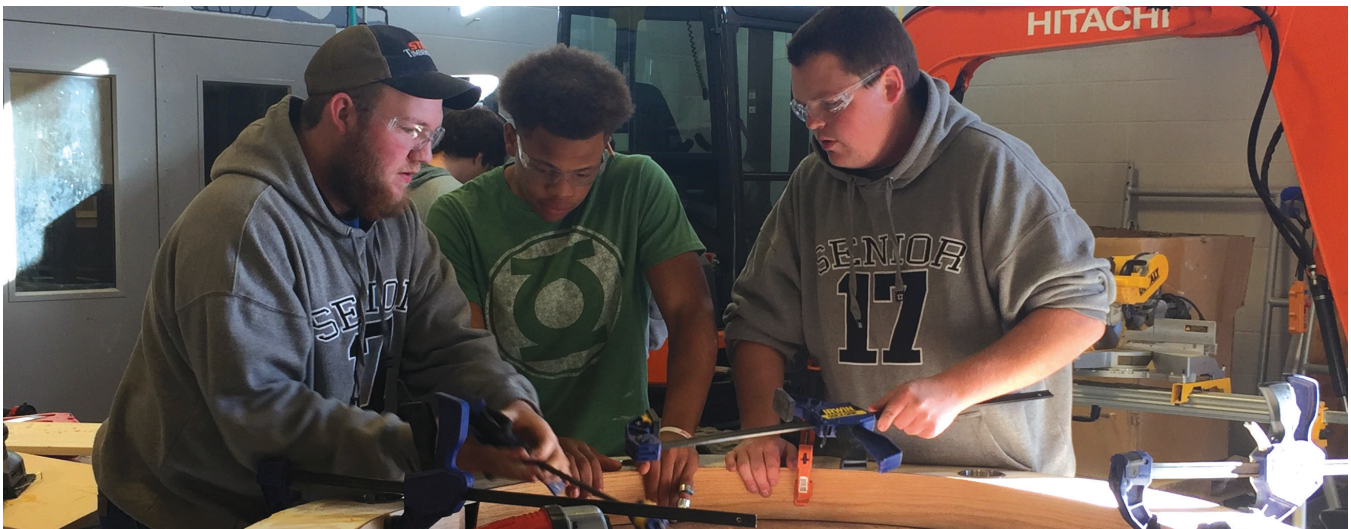
- Advanced Placement Exam (3+)
- Advanced Placement Course (A, B or C)
- Dual Credit College English and/or Math (A, B or C)
- College Developmental/ Remedial English and/or Math (A, B or C)
- Algebra III (A, B or C)
- GPA 2.8+

College Readiness Placement Assessment

- ACT Exam (English 18, Reading 22, Science 23, Math 22)
- SAT Exam (Math 530, Reading and Writing 480)

Career Ready Indicators

- 90% Attendance
- 25 Hours of Community Service
- Workplace Learning Experience
- Industry Credential
- Dual Credit Career Pathway Course
- 2+ Organized Co-Curricular Activities



Next Steps

This report was created to provide a broad regional snapshot of Career & Tech Education and highlight innovative ideas that school districts can implement to begin to develop workplace competencies in grades K-12. Some key themes have emerged:

- The Kansas City region has some shining examples of comprehensive, systemic initiatives that are providing students with market value assets. Nearly every school or district is doing something to prepare students for college or career. The challenge is ensuring that curriculum and credentials align with employer demand and postsecondary progress.
- Industry engagement is a theme among best practices. Industry leaders are engaged to inform the development of instructional materials, projects and specific curriculum standards; provide content through classroom projects or presentations; and provide sites for internship or externship opportunities. However, employers are often overwhelmed by multiple requests from individual organizations. An organized system is needed to increase efficiency, reduce duplication, and take these opportunities for students and teachers to scale.
- More consistent and complete data regarding participation in and completion of CTE programs on both sides of the state line is necessary to measure regional progress.
- The cultural norm for education is still very much rooted in the traditional model (teachers lecture, students listen), but the demands and expectations placed on graduates have changed dramatically. Introducing new project-based and authentic learning models requires a broad, cultural shift in our definition of what a classroom, school or district should look like. The departments of education in both Kansas and Missouri have introduced mechanisms for innovation and proliferation of new models and systems once the community defines its goals.

This review is just the first step of a multi-step process. Over the coming months a community-engaged planning process will be launched in order to help (1) define a shared vision with input from employers, educators, parents, students and civic organizations; (2) identify specific goals and ways to measure progress; (3) establish a regional structure to support sustainable innovation; and (4) address the sector needs of today while building nimble educational frameworks for the future that can adapt indefinitely to an increasingly dynamic economy.

CTE programs are proven to add value for a wide variety of student populations, including high achievers, at-risk students, English Language Learners and students with an Individual Education Program. Ultimately, this work aims to ensure that all students have the opportunity for relevant, authentic learning experiences before graduating from high school.

Special thanks to the following individuals for their time during the research phase that led to this report.

EDUCATION INTERMEDIARIES

Martha McCabe, KC STEM Alliance
Scott Smith, Arkansas Public School Resource Center
Kari Keefe, Kansas City Social Innovation Center
Julie Holland, Kansas City, Missouri, Mayor's Office
Clyde McQueen, Full Employment Council
Mark Irvin, Social Impact Technology & Engineering
Susan Wally, PREP-KC

K-12 EDUCATION PROVIDERS

Dr. Todd White, Blue Valley School District
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Chad Ralston, Blue Valley CAPS Program
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Dr. Pat All, Olathe Public Schools
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Angela Epps, Olathe Public Schools
Amy Stolz, Olathe Public Schools
Sandy Henshaw, Northland CAPS Program
Allison Clemens, Northland CAPS Program
Lindsay Haymes, GO CAPS, Springfield, Missouri
Dawn Nizzi, Omaha, Nebraska
Dr. Jennifer Stanfill, Parkway School District
Eric Sill, CAPS Network Partner, Minnetonka, Minnesota
Dr. Travis Bracht Affton School District, St. Louis CAPS
Dr. Mike Poore, Little Rock School District
Dr. Christy Ziegler, Shawnee Mission School District
Dr. Cynthia Lane, Kansas City Kansas Public Schools
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Dr. Brad MacLaughlin, Independence School District
Dr. William Nicely, Kearney School District
Dr. Dan Clemens, North Kansas City School District
Dr. Chad Sutton, North Kansas City School District
Rochel Daniels, North Kansas City School District
Elaine Metcalf, Summit Technology Academy
Stan Elliot, University of Central Missouri
Brian Noller, Northland Career Center
Dr. Ryan Stanley, Park Hill School District
Colleen Jones, Liberty School District
Rashawn Caruthers, Kansas City Public Schools
Dr. Stephani Reynolds, Excelsior Springs School District

HIGHER EDUCATION

Dr. Cory Scheer, William Jewell University
Dr. John Jasinski, Northwest Missouri State University
Shonda R. Atwater, Metropolitan Community College

ECONOMIC DEVELOPMENT/CHAMBER OF COMMERCE

Brian Crouse, Missouri Chamber of Commerce and Industry

FOUNDATIONS

Aaron North, Ewing Marion Kauffman Foundation
Awais Sufi, SchoolSmartKC
Sherman Whites, Ewing Marion Kauffman Foundation
Amy Gale, Ewing Marion Kauffman Foundation
Leigh Ann Taylor Knight, The DeBruce Foundation/ThinkShift
David Levy and Sam Hiersteiner, New Profit, Inc.

STATE DEPARTMENTS OF EDUCATION

Dr. Randy Watson, KSDE
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Dr. Blaine Henningsen, MoDESE
Marsha Chappelow, MoDESE

BUSINESS PARTNERS

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Laurie Minard, Garmin International
Laura Evans, Cerner Corporation
Anna Hennes, Cerner Corporation
Melissa Boyd, Cerner Corporation
Mandy Nickell, Cerner Corporation
Richard Groves, North Kansas City Business Council
Mike Stradinger, Holland 1916
Tony Reinhart, Ford Motor Company
Gary Nevius, Scott Pashia, Kevin Greischar and Jim French,
DLR Group Architectural Firm
Darren DuPriest, Validity Screening Solutions
Holly Waddle, Faith Technologies
Alana Muller, CoffeeLunchCoffee
Mitch Gold, Ph.D. Right Management/Manpower Group

Methodology:

A landscape analysis was performed by Donna Deeds on behalf of Kauffman Foundation. Some of her findings are incorporated in to this report. Data was provided by MoDESE and KSDE.

Photo credits:

Page 3: PREP-KC
Page 6: Herndon Career Center
Page 8: Summit Technology Academy and Herndon Career Center
Page 12: Shawnee Mission School District
Page 17: Shawnee Mission School District
Page 26: Herndon Career Center

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