

Career and Technical Education for College and Career Readiness — Convergence of Academics and CTE



Acknowledgment

The International Center for Leadership in Education
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Contents

Introduction	v
1. Changing Skills for a Changing Economy	1
From Isolation to Globalization	1
The Changing Employment Environment	10
Technology Requirements for Success in the Workplace	13
America’s Changing Demographics	14
Moving Forward	21
2. Evolution from Vocational Education to Career and Technical Education	25
History of Vocational Education	25
Current Trends in Education	30
Current Trends in the Workplace	37
Rigor, Relevance, and Relationships in CTE	44
Moving Ahead with Change	49
3. Redefining CTE in the 21st Century	53
A Look Back at the Accountability Movement	53
Importance of a Data-Driven, Quality Improvement Plan	57
Integrating Academics and CTE	58
Teaching the Way the Brain Learns Best	63
Literacy for the 21 st Century	70
Education Leadership for CTE	80
Moving Forward	82
4. Career Pathways K-14	83
Millennial Dropouts: A Crisis in the Making	83
Four Keys to Improving Student Performance	85
Career Clusters	96
Career Education: Essential for Career Pathways	100
CTE Policies Between Secondary and Postsecondary Education	106
Moving Forward	124
5. Partnerships for Program Improvement	127
Counseling as a System	127
Developing Partnerships for Student Success	133
Assessment of Community Resources	145
Economic Development as a Focus	147
Moving Forward	150

6.	Aligning Curriculum and Assessment	151
	Continuous Improvement Model	151
	Assessing Student Mastery	166
	Program Evaluation for Improvement	178
	Moving Forward	181
7.	Perkins Reauthorization	185
	Perkins Requirements and Accountability	186
	Tips and Templates	195
	Appendix	201
	What We Know About Adolescent Reading White Paper	201
	Cornell Graphic Organizer	219
	Rock Around the Clock	226
	RAFT	231
	Making Assessing CTE Programs Meaningful	234
	A. J. Moore Academy Case Study	238
	Butler Technology and Career Development Schools Case Study	258
	LaGrange High School Case Study	284
	Sacramento New Technology High School Case Study	304
	Zebra New Tech High School Case Study	326
	New York State Implementation Guide to CTE Program Approval	351
	References	366

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Bailey, T., Jeong, D.W.
and Woo-Cho, S.
*Referral, Enrollment,
and Completion
in Developmental
Education Sequences in
Community Colleges*

If students fail to meet functional literacy levels, the probability of placing them in remediation at the postsecondary level is high. The more remedial courses students are required to take, the less likely they will be to complete a postsecondary program. The need for literate and technically skilled workers is becoming more and more critical. Students unable to graduate from high school or enter a postsecondary program will find little hope for their future.

.....
Holzer, H. and
Lerman, R. *America's
Forgotten Middle-skill
Jobs: Education and
Training Requirements
in the Next Decade
and Beyond*

Reviewing predictions from the Bureau of Labor Statistics, the Workforce Alliance described trends in supply and demand related to technological innovation in the manufacturing segment and by global demand and opportunities. Regardless of the industry, changes in the patterns of employment have occurred, as well as changes in classifications of work. What is apparent, however, is that the greatest number of work opportunities now and in the near future (more than 80%) will be classified as middle- and high-skill. Low-skill jobs within the service industry will increase somewhat for waiters/waitresses, nursing-related occupations other than licensed nurses, home health aides, and cleaning-related work. In spite of the increased need in these areas, low-skill jobs remain a very small segment of work opportunities (less than 20%). With many young people poorly prepared for postsecondary education and those who fail to complete high school competing for low-skill work, a growing number of young people will find themselves left out of the employment pool.

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Technology Requirements for Success in the Workplace

More and more, science, technology, engineering, and mathematics are driving the future. By reviewing the names of the graduates from baccalaureate and master's degree programs in these areas, one quickly realizes that the United States is educating students from around the world. Many of these students will not use their degrees to develop innovative technology in the United States; rather, they will return to their native countries to become global competitors.

The 2007 *Trends in International Math and Science Study* reflects the failure of U.S. students to keep up with other industrialized

nations. Clearly, middle-skill jobs will have the largest employment potential for the next 8-10 years. The skills required for these jobs will require more than a high school diploma, but less than a baccalaureate degree. The necessary skills will involve use of technology, innovation, and a relatively high level of technical sophistication. To develop a competitive edge, the Council on Competitiveness recommends greater focus on the following areas for scientists and engineers:

- integrative ability
- entrepreneurship
- business-savvy service
- computational, to leverage America's IT (Information Technology) advantage

The Council warns that if America is to retain a competitive edge in a global economy, it must not focus only on the most advanced tools and technologies, but also on the people to use them:

Bottom Line: The world is being rewritten in digital, atomic, and genetic codes. Information technologies, nano-technologies and biotechnologies all hold out the promise that new ideas, inventions, and innovations will ultimately create whole new industries, not yet conceived. America's innovation advantage means continuous innovation in scientific talent as well as technology and creating the competitive difference that will concentrate cutting-edge investments in this country.

.....
Council on
Competitiveness.
*Thrive: The Skills
Imperative*, pp. 6
and 27

Not only has the U.S. economic structure changed, and not only is the workplace changing dramatically, human potential is changing as well. The demographics of the American population are more diverse than ever before. In fact, an increase in the non-white

**America's
Changing
Demographics**

.....
Kirsch, I., Braun, H.,
Yamamoto, K., and
Sum, A. *America's
Perfect Storm: Three
Forces Changing Our
Nation's Future*

subgroups and a decrease in the white subgroup are occurring. According to Irwin Kirsch and his colleagues, three aspects — divergent skill distributions, a shift in the demographics of the country, and the economic and job structure — have created a “perfect storm.” The literacy levels of many students and adults are at a level too low to provide opportunities for retraining. The most educationally disenfranchised native subgroups in this population are also the fastest growing subpopulations and are being relegated to the ever-decreasing low-skill occupations.

The U.S. economic and occupational outlook requires a continued increase in rigorous knowledge and skills for work paying a wage sufficient to support a family. This report indicates that the U.S. population growth will be slow over the next 10 years and that the growth will be almost entirely from non-native populations. While native African-Americans demonstrate significantly lower literacy skills than their white American counterparts, Black non-African Americans tend to perform at higher levels. Asian-born immigrants outperform native white Americans. English language proficiency has a major impact on how well America's non-native population is able to perform on rigorous content. Many of America's non-native population report that they do not speak English well.

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America's changing
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occupations.

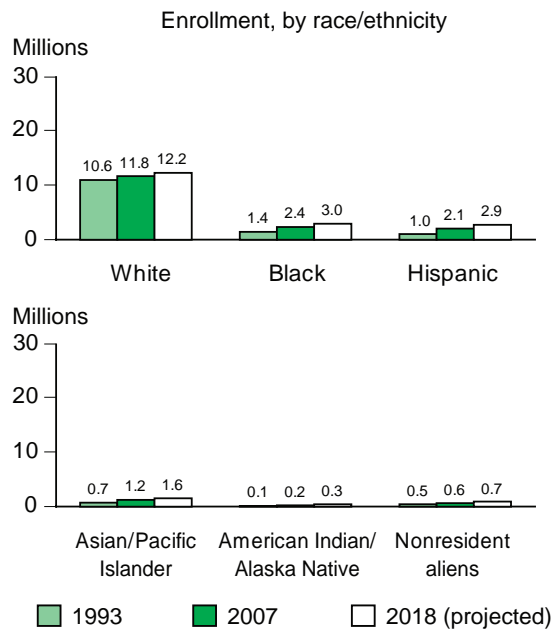
America's changing demographics will have a dramatic impact on who participates in the postsecondary education programs that lead to middle- and high-skill occupations. Americans must recognize that the curriculum and pedagogy will need considerable scrutiny to determine the effectiveness of teaching rigorous content to a changing demographic group. In addition, how can those native students who have been disenfranchised from the traditional education system best be reached? The country cannot afford to accept failure of its native-born students.

Postsecondary Enrollment Growth

By 2018, the enrollment in U.S. postsecondary degree-granting institutions will increase by 28% for Hispanic students, 20%

for African-American students, and 4% for white students. Interestingly, the increase of nonresident aliens in postsecondary programs will be 14% by 2018. This growth is reflected in the following chart. Educators at the secondary as well as the postsecondary levels must consider the projected changes in the demographics at the postsecondary level.

Figure D. Actual and middle alternative projected numbers for total enrollment in degree-granting institutions, by selected characteristics: Selected years, 1993 through 2018 —Continued



NOTE: Race categories exclude persons of Hispanic ethnicity. The racial/ethnic backgrounds of nonresident aliens are not known.
 SOURCE: U.S. Dept. of Education, NCES, Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey," various years; and Enrollment in Degree-Granting Institutions Model and Enrollment in Degree-Granting Institutions by Race/Ethnicity Model.

Hussary, W.J.
 and Bailey, T.M.
*Projections of
 Education Statistics
 to 2018*



Integration of Academics and Career and Technical Education Questionnaire

Directions: Read each statement. Based on the knowledge and skills *you have now*, circle the number that most nearly represents the degree to which you agree or disagree with the statement. There are no right or wrong answers. Your responses will be confidential, and the data will be reported as group data rather than as individual responses.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	5	4	3	2	1
1. With other teachers on a team, I can develop a plan to use standards-driven integration of academics and career and technical education (CTE) for our career pathways program, career academy, or small learning community.					
2. With other teachers on a team, I can develop a plan to use standards-driven integration of academics and career and technical education (CTE) for our career pathways program, career academy, or small learning community.					
3. I can work with other teachers on a team to develop and implement integrated instructional plans that are linked by cross-curricular standards.					
4. I can work with another teacher or teachers to develop and implement integrated learning experiences for students in which both the instruction and the assessment are coordinated.					
5. I can use my state standards, both academic and CTE, to develop rigorous and relevant lessons for my students.					
6. I can demonstrate my understanding of the resources available to me and team members by including these resources in the plan for our career pathways program, career academy, or small learning community.					
7. I can develop and implement a learning experience for students based on real-world applications.					

Lifetime Employability Versus Lifetime Employment

In 2007, Thomas Friedman challenged thinking beyond the expectations that work would be available to students. He believed that lifetime employment is a thing of the past. Students cannot expect to find work and stay in that work for a lifetime. Instead, they must recognize that the ability to remain employable as the world changes is critical for success. Lifetime employability means providing security in the form of benefits that once were available for all employees. Today, the cost of providing these types of benefits is prohibitive for many employers. Federal requirements to provide benefits could eliminate small business from the employer pool. In short, are students and workers able to:

- think about how to adapt their knowledge and skills to be employable when work changes with technology?
- shop and be effective consumers for the types of benefits that once were taken for granted when supplied by an employer?

Lifetime employability needs to be part of the new CTE curriculum if students are to be successful adults.

“Today we live in a different society, an information-rich, but relatively experience-poor society.” Dale Parnell’s challenge was how to provide an education as experience-rich as it is knowledge-rich. How can both an information-rich and an experience-rich curriculum occur in schools? The International Center for Leadership in Education has been promoting the restructuring of American schools using a rigorous academic approach through relevant applications.

This approach aligns with the way the brain processes information. Learning through a rigorous and relevant approach results

.....
Friedman, T.
*The World Is
Flat*

Rigor, Relevance, and Relationships for CTE

.....
Parnell, D. *Why
Do I Have to Learn
This?* p. 41

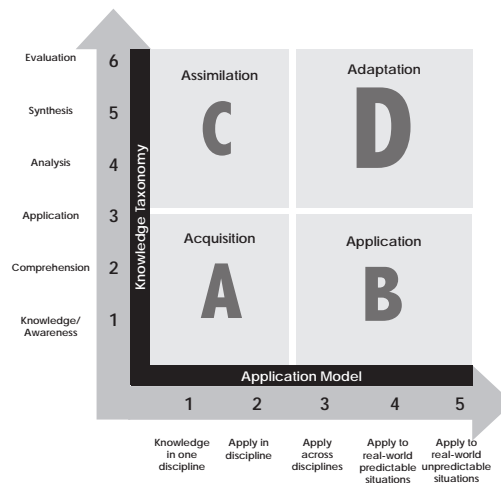
.....
 To move students from rote memorization to complex problem solving, transferring knowledge from contexts not related to the content area, it is essential that students have opportunities for many different applications of that knowledge.

Detterman, D. K. and Sternberg, R. J. (eds.) *Transfer on Trial: Intelligence, Cognition, and Instruction*

in pathways for recall embedded within the spatial memory of the human brain. Research by cognitive scientists reflects how experts have immediate access to information to solve even the most complex of problems — due to their multiple and diverse applications of knowledge. To move students from rote memorization to complex problem solving, transferring knowledge from contexts not related to the content area, it is essential that students have opportunities for many different applications of that knowledge.

Educators can help provide a scaffold for students to transfer new learning in one discipline to application in a separate discipline. Only when the two content areas are very similar will transfer occur automatically in the novice learner. Transfer between two *divergent* disciplines must be taught. To truly converge rigorous academic and technical skills, a framework for teaching is needed. The International Center’s Rigor/Relevance Framework® can bring about just such a critical convergence of rigorous academic knowledge with technical skills.

Rigor/Relevance Framework®



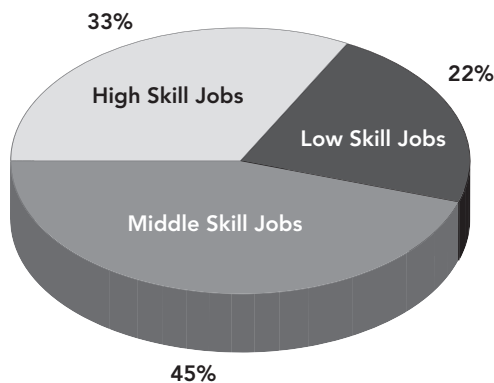
cohort that is far better educated, what is the answer to keeping them in school?

Building the case for postsecondary education for all cannot be underscored enough. Students must graduate from high school and be able to transition to a postsecondary program in order to find work that will provide a living wage. The history of vocational education has been chronicled throughout earlier chapters to document the changing attitudes toward the old two-track system: academic and vocational education. As changes in attitude slowly evolved, a new level of worker was evolving.

In the 1950s, work in the United States was organized into unskilled, skilled, and professional workers. Only about 20% of work was considered professional. Plenty of work was available for those who were unskilled — enough work that families could be supported fairly well with only one parent working. Today, work in the United States is structured dramatically differently, as the following figure demonstrates. Limited opportunities prevail for the unskilled worker, with the bulk of the work being done by middle- and high-skill workers.

Institute for
Competitive
Workforce. *The Skills
Imperative: How
Career and Technical
Education Can Solve
the U.S. Talent
Shortage*

Skill Level of U.S. Job Openings 2004-2014



Source: Holzer, H.J.
and Lerman, R.L.
*America's Forgotten
Middle-Skill Jobs:*
2007, p. 4

In order to meet the needs of an economy dependent on work requiring higher levels of knowledge and skills, education has to shift in emphasis, too. The two-track education system of academic and vocational education has to shift to support prevailing economic needs. How can that be accomplished? How can *all* students learn rigorous and relevant curriculum and be prepared for postsecondary education?

Four Keys to Improving Student Performance

To achieve the goal of all students performing at higher levels, the entire education system needs to be addressed. Educators must recognize the changes needed to ensure student success. The many different school improvement programs all purport to change education systemically. But no matter what program is selected, educators must recognize that programs will only be successful if core areas of teaching and learning are addressed. Four keys to making this happen are:

1. Communicate expectations for mastery of rigorous standards
2. Use evidence-based strategies to teach the standards
3. Align curriculum vertically as well as horizontally (career pathways)
4. Align teaching with assessment

1. Communicate Expectations

All states have developed sets of rigorous academic and CTE standards as a requirement of the NCLB legislation. State standards were designed to represent what students need to know and be able to do to find success as adults. State standards were not designed to be minimal standards for performance but rather to be rigorous standards that prepare students for success in

Key Players in a Career Counseling System

Who should be part of a career counseling system? CTE teachers, academic teachers, administrators, guidance counselors, business partners, parents, and community members need to be included. Career counseling means more than simply assigning classes to students. It requires determining what is required to help students achieve at the levels necessary to achieve career goals.

Key Players in Career Counseling

Who is involved in career counseling at your local site? Study the following Architecture and Construction Career Pathway Plan of Study, then complete the table to determine what key players should be a part of the career counseling system for a student in this career cluster. A drafting example is provided.



SAMPLE

Architecture and Construction: Design/Pre-Construction Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

*This Career Pathway Plan of Study (based on the Design/Pre-Construction Pathway of the Architecture and Construction Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.*

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Design/Pre-Construction Pathway	SAMPLE Occupations Relating to This Pathway	
<i>Interest Inventory Administered and Plan of Study Initiated for all Learners</i>									
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics or World History	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities such as SkillsUSA are also important including public speaking, record keeping and work-based experiences.	Introduction to the Built Environment	<ul style="list-style-type: none"> ▶ Architect ▶ Building Code Official ▶ Building Designer ▶ Civil Engineer ▶ Code Official ▶ Cost Estimator ▶ Drafter ▶ Electrical Engineer ▶ Electronic Engineer ▶ Environmental Designer ▶ Environmental Engineer ▶ Fire Prevention and Protection Engineer ▶ Industrial Engineer ▶ Interior Designer ▶ Landscape Architect ▶ Materials Engineer ▶ Mechanical Engineer ▶ Regional and Urban Planner/Designer ▶ Safety Director ▶ Specification Writer ▶ Structural Engineer ▶ Surveying and Mapping Technician 	
	10	English/ Language Arts II	Geometry	Biology	U.S. History		<ul style="list-style-type: none"> - The Language of Architecture and Construction - Information Technology Applications 		
	11	English/ Language Arts III Technical Writing	Algebra II	Physics	Economics Psychology		<ul style="list-style-type: none"> - Safety, Health and the Workplace Environment - Principles of Design and Pre-Construction 		
	12	English/ Language Arts IV	Trigonometry Pre-Calculus	Chemistry			<ul style="list-style-type: none"> - Applications in Design and Pre-Construction 		
<i>College Placement Assessments-Academic Career Advisement Provided</i>									
<i>Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.</i>									
POSTSECONDARY	Year 13	English Composition English Literature	Algebra Trigonometry	Physics	American Government or History Psychology/ Interpersonal Skills	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status.	<ul style="list-style-type: none"> - Introduction to Architectural Technology Design and Pre-Construction Internship 		
	Year 14	Speech/ Oral Communication	Business Accounting Pre-Calculus or Calculus	Environmental Science	Sociology Business Law	Certain local student organization activities may also be important to include.	<ul style="list-style-type: none"> - Technical Applications of Design and Pre-Construction - Continue Design and Pre-Construction Internship 		
	Year 15	Continue courses in the area of specialization.						<ul style="list-style-type: none"> - Continue Courses in the Area of Specialization 	
	Year 16							<ul style="list-style-type: none"> - Complete Design/Pre-Construction Major (4-Year Degree Program) 	



Project funded by the U.S. Department of Education (V051B020001)

SAMPLE

Assessment of Community Resources

.....
[www.ed.gov/
blog/2011/01/
state-of-the-
union-education-
excerpts](http://www.ed.gov/blog/2011/01/state-of-the-union-education-excerpts)

In President Barack Obama's 2011 State of the Union Address, he charged all citizens with the following responsibilities:

Think about it. Over the next 10 years, nearly half of all new jobs will require education that goes beyond a high school education. And yet, as many as a quarter of our students aren't even finishing high school. The quality of our math and science education lags behind many other nations. America has fallen to ninth in the proportion of young people with a college degree. And so the question is whether all of us — as citizens, and as parents — are willing to do what's necessary to give every child a chance to succeed.

That responsibility begins not in our classrooms, but in our homes and communities. It's family that first instills the love of learning in a child. Only parents can make sure the TV is turned off and homework gets done. We need to teach our kids that it's not just the winner of the Super Bowl who deserves to be celebrated, but the winner of the science fair. We need to teach them that success is not a function of fame or PR, but of hard work and discipline.

What resources are available to help students achieve their career dreams? Never before in the history of public education has it been so critical for educators to look to community organizations to find help for students. At one time, parents facilitated the transition from secondary to postsecondary education. Today, many students need to find creative ways to provide the necessary support to attend postsecondary education. One-Stop Career Centers are one answer.

One-Stop Career Centers, created under the Workforce Investment Act, offer a full range of assistance to job seekers under one roof. Customers can visit in person or connect to the Center's information through personal computers or at a kiosk located at a distant site such as a shopping mall or library.

In an economy that requires adults to work hard just to pay the bills, postsecondary education for their children is a necessary economic drain. Education organizations at the secondary and the postsecondary levels must look to the community to find assistance for students to move from high school to college or technical training.



In creating career pathways, teams of secondary and postsecondary educators, counselors, and administrators need to assess community resources that are available to provide students with assistance in financial areas, employment, food and lodging, healthcare, and in some situations, childcare.

The Career One-Stop Center provides options for finding assistance in individual states and communities. All educators should explore options such as this to assist students through community organizations and work-based learning opportunities. Secondary and postsecondary partners must recognize the importance of *all* aspects of an individual's life in academic and technical skill mastery. Paying for classes is sometimes only one challenge students must face. Secondary students from impoverished homes have health, safety, lodging, transportation, and social/emotional needs. Postsecondary students have tuition needs added to other needs. Students from families in

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Secondary and postsecondary partners must recognize the importance of all aspects of an individual's life in academic and technical skill mastery.

which education beyond high school is not valued may have little support or encouragement for continuing education beyond public education.

Leveraging community resources may involve meeting with service organizations such as Kiwanis or Rotary to share the challenges of students and enlist support for assistance. While specific student information may not be shared, general needs and descriptions of types of services students need can be communicated to service-oriented community leaders.

Economic Development as a Focus

When creating career pathways, the economic development needs of the local community should be assessed. The U.S. Department of Labor provides a wealth of information regarding economic development and the occupational outlook. In addition, local communities have an economic development department, which also provides information regarding the employment outlook and potential areas of growth within occupational clusters. Local chambers of commerce are likewise rich resources to consult when beginning to plan career pathways.

To promote a career pathway in which there is little if any local growth forces students to leave the area in order to complete the program. Keeping students working in the same geographic area at jobs that are rewarding and provide a living wage contributes to the economic stability of an area.

The Center for Occupational Research and Development (CORD) uses the following worksheet when facilitating the reflection of career pathway teams on economic development needs within a specific area.

.....
www.bls.gov

Recommendation #1: Access to Frequent and Reliable Data

Schools need access to frequent, reliable data that will provide current baseline information in order to determine the degree of overall improvement. Too often schools use data from previous years as a baseline. Students need to be assessed individually to determine the degree to which they have gained a year of growth for a year of instruction. Student data should be provided to teachers in disaggregated form so that performance of sub-populations can be assessed. Too often test data is provided to academic teachers, but not to CTE teachers. CTE teachers need to see how well their students are doing academically in order to determine how to assist with student achievement most effectively.

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Student data should be provided to teachers in disaggregated form so that performance of sub-populations can be assessed.

Test your knowledge:

- What are criterion-referenced assessments?
- What are norm-referenced assessments?

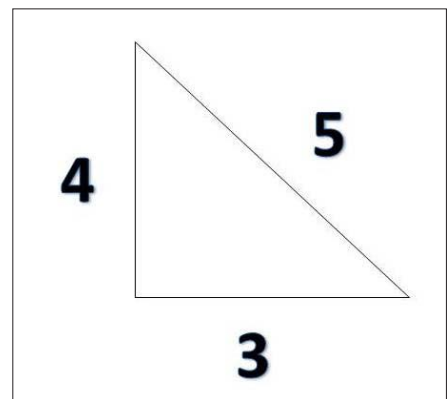
Recommendation #2: Teacher Support

Teachers need support to know what to do with data. Once teachers receive data, they must know how to utilize the information to adjust curriculum. Just having data does not ensure that teachers will know what to do with the scores. CTE teachers need disaggregate data organized by their classes in order to integrate the appropriate academic content into CTE curriculum. Chapter 1's Literacy Level Analysis provided an opportunity to document literacy levels using disaggregate data. This same kind of organizational chart can be used to align test data with CTE curriculum. For example, a health careers teacher reviews the disaggregate data for students and completes the following chart:

CD

Alignment of CTE Curriculum to Bridge Performance Gaps			
Sub-population	Academic Content Area	Area of Deficiency	CTE Content Area to Converge Academic Content
<i>Ex: White females</i>	<i>Mathematics</i>	<i>Mixed fractions</i>	<i>Pharmacologic fractions</i>

Helping CTE teachers transition from CTE content to academic content requires professional development. Too often, CTE teachers will identify the academic content area without help. When that happens, the differences in terminology may affect the ability of CTE teachers to align academic and CTE curriculum accurately. For example, building and construction students learn to identify square corners using a 3-4-5 angle calculation.



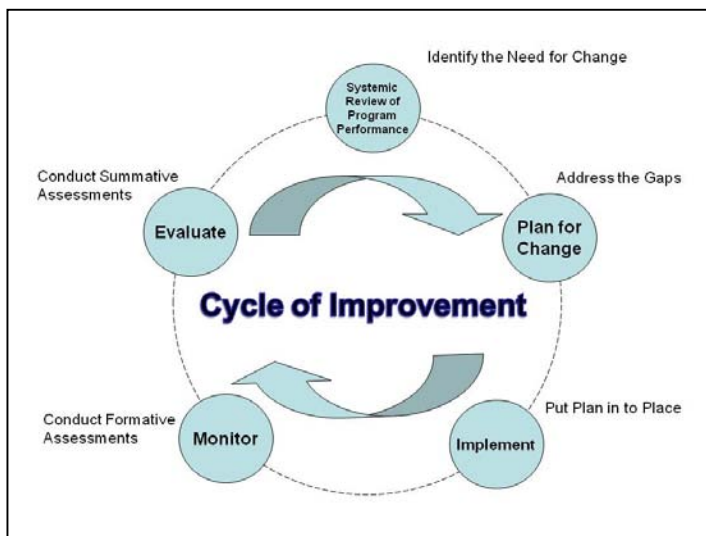
New York Mathematics Strands/Bands/ Performance Indicators Integrated Algebra	NY Regents Comprehensive Mathematics Exam	Information Technology				Law, Public Safety, Corrections & Security					Manufacturing					
		Programming & Software development	Network Systems	Information Support & Services	Interactive Media	Correction Services	Emergency & Fire Management Services	Security & Protective Services	Law Enforcement Services	Legal Services	Production	Mfg. Production Process Development	Maintenance, Installation & Repair	Quality Assurance	Logistics & Inventory Control	Health, Safety, & Environ. Assurance
Students will develop and evaluate mathematical arguments and proofs.																
A.RP.5 Construct logical arguments that verify claims or counterexamples that refute them	H									✓	✓	✓	✓	✓	✓	✓
A.RP.6 Present correct mathematical arguments in a variety of forms	H									✓	✓	✓	✓	✓	✓	✓
A.RP.7 Evaluate written arguments for validity	H	✓														
Students will select and use various types of reasoning and methods of proof.																
A.RP.8 Support an argument by using a systematic approach to test more than one case	H									✓	✓	✓	✓	✓	✓	✓
A.RP.9 Devise ways to verify results or use counterexamples to refute incorrect statements	H	✓														
A.RP.10 Extend specific results to more general cases	H									✓	✓	✓	✓	✓	✓	✓
A.RP.11 Use a Venn diagram to support a logical argument	H		✓													

The Curriculum Matrix provides opportunities for educators to extend and enhance curriculum and instructional improvement efforts. It gives form and substance to the alignment of standards with 16 career clusters and 79 career pathways, assessments, and community expectations. As a tool to guide instruction and instructional decisions, the Curriculum Matrix assists educators in raising student performance.

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As a tool to guide instruction and instructional decisions, the Curriculum Matrix assists educators in raising student performance.

In the age of accountability, program improvement must be evidence-based. Is there a model that will help CTE educators and administrators conduct an evaluation that will direct program improvement efforts? Many organizations follow a five-step evaluation model such as the following to gather evidence to improve programs of all types.

Program Evaluation for Improvement



Step 1. Identify the need for change. Using information gathered regarding the systemic function of the program, determine the need for change. Where are the gaps in expected performance? Write objectives for improvement. What is the desired achievement?

select measures based on workplace standards to document proficiency of students completing CTE programs. While the “if available and appropriate” terminology appears in the 2006 Perkins, it is expected that the verbiage will be more forceful in the reauthorization of Perkins.

Local Uses of Funds (Section 135)

This section lists nine required uses of the funds. It also enumerates additional permissive uses of the funds, but the requirements take priority. These requirements are quite supportive of the purposes listed in the act. Careful review of the requirements will stimulate progressive projects and activities that can enhance both CTE and academic education. The nine requirements provide specific descriptions that clearly define appropriate activities for Perkins-funded projects. Think about strategic planning toward the overall mission of the institution, as these requirements are reviewed.

Local Uses of Funds	Explanation
<p>1. Strengthen student abilities by integration of academics with career and technical skills development through a coherent sequence of courses, such as programs of study defined in Section 122 to ensure learning in both academics and CTE subjects.</p>	<p>Section 122 refers to the state plan. It is important to know the key strategies and directions narrated in the state plan. The state plan is developed with teams of partners from various agencies, probably involving teachers, faculty, administrators, state staff, business and industry, unions, counselors, special needs specialists, data specialists, assessment specialists, and others. The process of the state plan development aligns the intent of the Perkins act with the needs and focus of the state education systems, economic systems, and workforce systems. Such a powerful collaboration incorporates the possibilities of quality CTE and provides a roadmap for reaching the level of excellence that serves the citizenry well. The state plan explains how the state defines programs of study and how these will be developed, monitored, and used to serve students who are learning careers.</p>
<p>2. Link secondary and postsecondary CTE, including offering the relevant elements of not less than one CTE program of study, as described in Section 122.</p>	<p>The Perkins act clearly indicates that no CTE program operates in isolation of post-high school or advanced education opportunities. Congress supports the programs of study concept as a means to help high school students plan and set goals about careers, understand the relevance of academics in the career context, and know the need for advanced education as they develop their skills for the 21st century workforce.</p>

Step 1. Gather the data.

Data Gathering Template				
Institution Vision	State Plan Strategies	Perkins Act Requirements	Common Elements	CTE Mission Statement
Current Perkins Performance Results	State Department of Labor Jobs Data Analysis	Previous Uses and Results of Perkins Funds	Other Data	Amount of Grant
Strengths	Weaknesses	Opportunities	Threats	Other
How to use strengths	How to reduce weaknesses	How to exploit opportunities	How to overcome threats	Other