

San Diego Unified School District
Deputy Superintendent of Academics

GSA-2 – Academics
Section 2.5 Practical Arts
Reference Information

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Comprised of teachers, specialists, large/medium/small business members, industry/trade associations, higher education partners— Industry Sector Advisory Boards and Curriculum Review Team Participants for 2010-2011 by Industry Sector:

Arts, Media & Entertainment	Building Trades & Construction	Education, Child Development & Family Services	Engineering & Design
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The 15 Industry Sectors and 58 Career Pathways of Career Technical Education

The California career technical education (CCTE) model curriculum standards are organized in 15 *industry sectors*, or groupings, of interrelated occupations and broad industries. Each sector has two or more career pathways. (See the accompanying chart for an overview of the sectors and pathways.) A *career pathway* is a coherent sequence of rigorous academic and technical courses that allows students to apply academics, develop technical skills in a curricular area and apply transferrable skills that will allow them to succeed in both college and career and succeed in the society of tomorrow. Career pathways prepare students for successful completion of state academic and technical standards and more advanced postsecondary course work related to the career in which they are interested.

1	Arts, Media, and Entertainment Industry Sector	<ul style="list-style-type: none"> a) Media and Design Pathway b) Performing Arts Pathway c) Production and Managerial Arts Pathway
2	Building Trades and Construction Industry Sector	<ul style="list-style-type: none"> a) Cabinetmaking and Wood Products Pathway b) Engineering and Heavy Construction Pathway c) Mechanical Construction Pathway d) Residential and Commercial Construction Pathway
3	Education, Child Development, and Family Services Industry Sector	<ul style="list-style-type: none"> a) Child Development Pathway b) Consumer Services Pathway c) Education Pathway d) Family and Human Services Pathway
4	Energy and Utilities Industry Sector	<ul style="list-style-type: none"> a) Electromechanical Installation and Maintenance Pathway b) Energy and Environmental Technology Pathway c) Public Utilities Pathway d) Residential and Commercial Energy and Utilities Pathway
5	Engineering and Design Industry Sector	<ul style="list-style-type: none"> a) Architectural and Structural Engineering Pathway b) Computer Hardware, Electrical, and Network Engineering Pathway c) Engineering Design Pathway d) Engineering Technology Pathway e) Environmental and Natural Science Engineering Pathway
6	Fashion and Interior Design Industry Sector	<ul style="list-style-type: none"> a) Fashion Design, Manufacturing, and Merchandising Pathway b) Interior Design, furnishings, and Maintenance Pathway
7	Finance and business Industry Sector	<ul style="list-style-type: none"> a) Accounting Services Pathway b) Banking and Related Services Pathway c) Business Financial Management Pathway

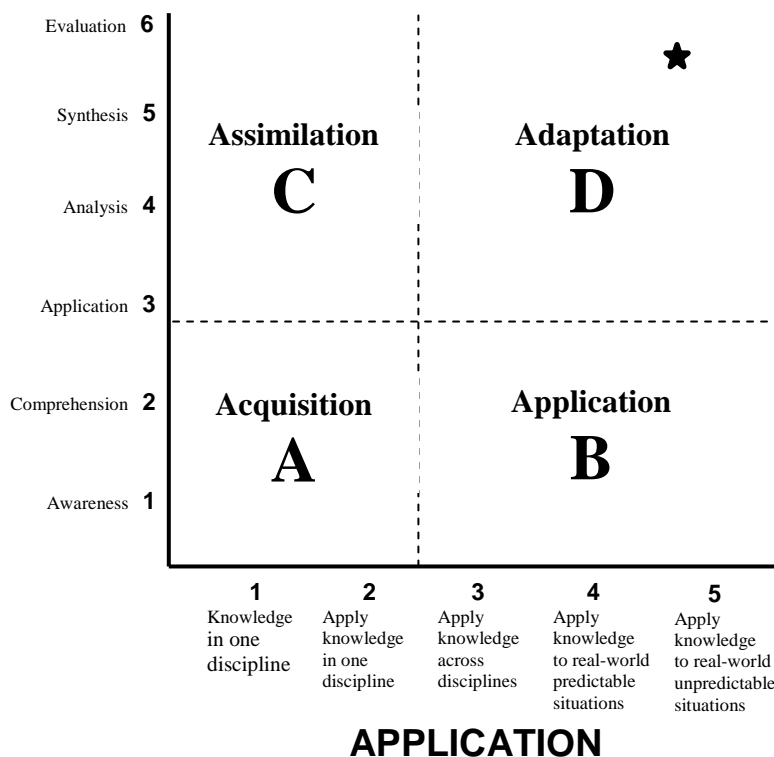
8	Health Services and Medical Technology Industry Sector	<ul style="list-style-type: none"> a) Biotechnology Research and Development Pathway b) Diagnostic Services Pathway c) Health Information Pathway d) Support Services Pathway e) Therapeutic Services Pathway
9	Hospitality, Tourism and Recreation Industry Sector	<ul style="list-style-type: none"> a) Food Science, Dietetics, and Nutrition Pathway b) Food Service and Hospitality Pathway c) Hospitality, Tourism, and Recreation Pathway
10	Information Technology Industry Sector	<ul style="list-style-type: none"> a) Information Support and Services Pathway b) Media Support and Services Pathway c) Network Communications Pathway d) Programming and Systems Development Pathway
11	Manufacturing and Product Development Industry Sector	<ul style="list-style-type: none"> a) Graphic Arts Technology Pathway b) Integrated Graphics Technology Pathway c) Machine and Forming Technology Pathway d) Welding Technology Pathway
12	Marketing, Sales, and Service Industry Sector	<ul style="list-style-type: none"> a) E-commerce Pathway b) Entrepreneurship Pathway c) International Trade Pathway d) Professional Sales and Marketing Pathway
13	Agriculture and Natural Resources Industry Sector	<ul style="list-style-type: none"> a) Agricultural Business Pathway b) Agricultural Mechanics Pathway c) Agriscience Pathway d) Animal Science Pathway e) Forestry and Natural Resources Pathway f) Ornamental Horticulture Pathway g) Plant and Soil Science Pathway
14	Public Services Industry Sector	<ul style="list-style-type: none"> a) Human Services b) Legal and Government Services Pathway c) Protective Services Pathway
15	Transportation Industry Sector	<ul style="list-style-type: none"> a) Aviation and Aerospace Transportation Services Pathway b) Collision Repair and Refinishing Pathway c) Vehicle Maintenance, Service, and repair Pathway

The Foundation (Common) Standards of Career Technical Education

There are 11 *foundation (common) standards* that all students need to master to be successful in the career technical education curriculum and in the workplace. These standards are similar to the competencies described in the June 1991 report issued by the U. S. Department of Labor, *Secretary's Commission on Achieving Necessary Skills (SCANS)*. The foundation standards are uniform in all sectors, although the subcomponents will differ. They cover the 11 areas essential to all students' success:

- 1.0 **Academics:** Students understand the academic content required for entry into postsecondary education and employment in applicable industry sector.
- 2.0 **Communications:** Students understand the principles of effective oral, written, and multimedia communication in a variety of formats and contexts.
- Career Planning and Management
- 3.0 **Career Planning and Management:** Students understand how to make effective decisions, use career information, and manage personal career plans.
- 4.0 **Technology:** Students know how to use contemporary and emerging technological resources in diverse and changing personal, community, and workplace environments:
- 5.0 **Problem Solving and Critical Thinking:** Students understand how to create alternative solutions by using critical and creative thinking skills, such as logical reasoning, analytical thinking, and problem-solving techniques:
- 6.0 **Health and Safety:** Students understand health and safety policies, procedures, regulations, and practices, including the use of equipment and handling of applicable materials.
- 7.0 **Responsibility and Flexibility:** Students know the behaviors associated with the demonstration of responsibility and flexibility in personal, workplace, and community settings.
- 8.0 **Ethics and Legal Responsibilities:** Students understand professional, ethical, and legal behavior consistent with applicable laws, regulations, and organizational norms.
- 9.0 **Leadership and Teamwork:** Students understand effective leadership styles, key concepts of group dynamics, team and individual decision making, the benefits of workforce diversity, and conflict resolution.
- 10.0 **Technical Knowledge and Skills:** Students understand the essential knowledge and skills common to all pathways in the applicable industry sector.
- 11.0 **Demonstration and Application:** Students demonstrate and apply the concepts contained in the foundation and pathway standards.

Based upon Bloom's Taxonomy, the Rigor/Relevance Frame Work of Dr. Willard Daggett as Listed in CDE CTE Standards



The Career Ready, Course Work, and Industry Sector Composite Progression

There are no formal courses for career readiness (CCTE) before the 6th grade. The progression of career ready experiences starts with *Early Indicators* at 48 and 60 months. *Early Explorations* occur from grades K-5/6 with measurable items accessible through standards based report cards and school reports based upon markers, projects and standards in grades K, 3 and 6. In grades 6/7-12 course work is designed around four stages of development: *Exploratory* at grades 6-8; *Foundation (Introductory)* in grades 9-10; *Intermediate* in grades 10-11; and *Advanced (Capstone)* in grades 11-12. While it is possible for a 12th grade student to return to *Foundation* course, students must be enrolled in appropriate sequencing as defined in the *Career Ready and College Prepared* graduation requirements that calls out a minimum of two (2) courses in the same sequence of courses.

The following is a sample progression of skill levels based upon the *11 Foundation (Common) Standards* as applied to the four levels offered between grades 6/7-12. All site and classroom progress should be based upon applicable monitoring of the following established and developing systems of measures: CST, Course Benchmarks, Teacher-created Tests, Projects, Models, Constructions, Performance Assessments, Technical Writing, Teacher Observation, Teacher-created Rubrics, Pre and Post Tests, Portfolios.

GENERAL INDICATORS			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
GRADES 6/7-8	GRADES 9-10		
By the end of Eighth Grade students have explored the process of career preparation that will enable them to identify initial career interests to determine whether it might be a pathway of continued study in high school.	By the end of Tenth Grade, students have acquired declarative knowledge of industry sector and career pathways as well as academic knowledge and technical skills including facts, events, concepts, principles and an understanding of component parts.	By the end of Eleventh Grade, students have acquired procedural knowledge of industry sector and career pathways as well as academic knowledge and technical skills including skills and processes important to content area.	By the end of Twelfth Grade students have acquired contextual knowledge of industry sector and career pathways as well as academic knowledge and technical skills including information and learning supported by hands-on instruction that applies principles, concepts, abilities, and processes from academic and technical curricula to real world tasks.
COMMON STANDARDS AND DISCIPLINES SAMPLES			
1.0 ACADEMICS			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
The academic standards are standards approved by California's State Board of Education (SBE) for various disciplines. They are integrated with the industry sector pathway and are supported and reinforced in applied situations. These standards support the academic content required for entry into postsecondary education.	The academic standards are standards approved by California's State Board of Education (SBE) for various disciplines. They are integrated with the industry sector pathway and are supported and reinforced in applied situations. These standards support the academic content required for entry into postsecondary education.	The academic standards are standards approved by California's State Board of Education (SBE) for various disciplines. They are integrated with the industry sector pathway and are supported and reinforced in applied situations. These standards support the academic content required for entry into postsecondary education.	The academic standards are standards approved by California's State Board of Education (SBE) for various disciplines. They are integrated with the industry sector pathway and are supported and reinforced in applied situations. These standards support the academic content required for entry into postsecondary education.
<u>Mathematics:</u> Sample- (Standard 1.1, Number Sense 1.2) Add, subtract, multiply, and divide rational number (integers, fractions, and terminating decimals) and take positive rational numbers to the whole	<u>Mathematics:</u> Sample- (Standard-Algebra I, 1.1) Students solve multistep problems including word problems, involving linear equations and linear inequalities in one variable and provide justification for	<u>Mathematics:</u> Sample- (Standard 1.1 Geometry, 8.0) Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common	<u>Mathematics:</u> Sample- (Standard-Algebra 2, 1.1) Students add, subtract, multiply and divide complex numbers. <i>Application:</i> Students analyze and record how energy is transferred; identifies the effects of

<p>number power. <i>Application:</i> Transactions are added and subtracted accurately to maintain balanced transactions with 100 percent accuracy. (FB A 2.2)</p> <p><u>Science:</u> Sample- (Standard 1.2, Sciences 5. B) Students know organ systems function because of the contributions of individual organs, tissues, and cells. The failure of any part can affect the entire system. <i>Application:</i> Information presented correlates knowledge of body systems and their functions with the explained imagery technique. (HSMT B 4.1)</p> <p><u>History-Social Science:</u> Sample- (Standard Chronological and Spatial Thinking 1.3) Students analyze how change happens at different rates and different times; understand that some aspects can change while others remain the same; understand that change is complicated and affects not only technology and politics, but also values and beliefs. <i>Application:</i> Students will compare and contrast their educational experiences with those of an adult via a personal interview. (ECDFS C 9.2)</p>	<p>each step. <i>Application:</i> Students calculate, derive, and make correct use of transfer of energy formulas (ED D4.4)</p> <p><u>Science:</u> Sample- (Standard- Science, Biology Life Science 1.2) Students know the role of antibodies in the body's response to infection. <i>Application:</i> Students will identify common communicable diseases found in child care environments and preventive measures. (ECDFS A 9.0)</p> <p><u>History-Social Science:</u> Sample- (Standard-Social Science, Historical Interpretation 1.2) Students show the connections, casual and otherwise and between particular historical events and larger social, economic, and political trends and developments. <i>Application:</i> Students will create a timeline reflecting economic conditions and use of fabric in fashion. (FID A 7.0)</p>	<p>geometric figures. <i>Application:</i> Uses appropriate, listed formulas and calculations are correctly performed within the desired range. (BTC B 4.2)</p> <p><u>Science:</u> Sample- (1.2 Physics 5.A) Students know how to predict the voltage or current in simple direct current (DC) electrical circuits constructed from batteries, wires, resistors, and capacitors. <i>Application:</i> student solves ten electronic circuit problems without any errors. (EU A 2.5)</p> <p><u>History Social-Science:</u> Sample- (Standard-Continuity and Change in the 20th Century 1.3) Analyze the persistence of poverty and how different analysis of this issue influence welfare reform, health insurance reform and other social policies. <i>Application:</i> Students investigate health care costs for ten specific procedures and compare these costs with given income levels. (HSMT A 6.0)</p>	<p>resistance, and mechanical, electrical, fluid, and thermal systems. (ED D 4.4)</p> <p><u>Science</u> Sample- (Standard-Physics 1.2) Students know how to solve problems, heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings. <i>Application:</i> Students relate and apply measurement systems and the mathematical functions necessary to perform required maintenance and operation procedures. (TRANS A 3.0)</p> <p><u>History-Social Science:</u> Sample- (Standard-US History and Geography 1.3) Explain how the federal, state, and local governments have responded to demographic and social changes such as population shifts to the suburbs, racial concentrations in the city, frost belt to sun belt migration, international migration, decline of family farms, increases in out of wed lock births, and drug abuse. <i>Application:</i> Student designs and produces a global informational map reporting population density in the local community. (IT C 2.0)</p>
2.0 COMMUNICATIONS			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 2.4, 1.7) Use props, visual aids, graphs, and electronic media to enhance the appeal and accuracy of presentations.</p> <p><i>Application:</i> The team produces and presents computer rendered and visually projected slides. The presentation is clear and comprehensive and involves all team members. (ED B 5.0)</p>	<p>Sample- (Standard-2.2) Develop presentations by using clear research questions and creative and critical research strategies (e.g., field studies, oral histories, interviews, experiments, electronic sources).</p> <p><i>Application:</i> Student creates an informative poster regarding survey on consumer decisions and experiences. Survey involves ten questions and a sample of thirty-six or more consumers.</p>	<p>Sample- (Standard 2.4) Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects).</p> <p><i>Application:</i> Delivers speech with all details in a clear, coherent, and interesting fashion. (BTC B 4.2)</p>	<p>Sample- (Standard 2.4) Evaluate when to use different kinds of effects (e.g. visual, music, sound, graphics) to create effective productions.</p> <p><i>Application:</i> sound track is complete, well synched, and appropriate to the tone and content of the animation. The wording or musical choice is innovative and adds significant impact to the project. (AME A 1.2)</p>

	(ECDFS B 5.0)		
3.0 CAREER PLANNING AND MANAGEMENT			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 3.3) Develop a career plan that is designed to reflect career interest, pathways, and post-secondary options.</p> <p><i>Application: Report includes a career plan that is realistic and takes into account all the information gained through research and the interview. Plans for future professional development in the field are concrete and integrated with a career plan. (AME B 6.5)</i></p>	<p>Sample- (Standard 3.1) Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.</p> <p><i>Application: Student chooses an aspect of professional theater that is perfectly suited to his or her experience, interest, and aptitudes and explains the choice well, contrasting the choice with multiple examples of other aspects and showing why the aspect chosen is right for him or her. (AME B 6.5)</i></p>	<p>Sample- (Standard 3.1) Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.</p> <p><i>Application: The report describes the career in detail, including qualifications, educational requirements, and advantages and disadvantages. The student links the qualifications closely to personal interests and aptitudes. The report includes interviews with people in the career area as well as traditional research. (IT A7.1)</i></p>	<p>Sample- (Standard 3.4) Understand the role and function of professional organizations, industry associations, and organized labor in a productive society.</p> <p><i>Application: Research on industry guild, association, or union is thorough and answers accurately all of the questions listed in the assignment. Student shows an understanding of craft union and trade unions in the industry as a whole as well as in their chosen aspect. (AME B 6.5)</i></p>
4.0 Technology			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 4.2) Understand the use of technological resources to gain access to, manipulate and produce information, products, and services.</p> <p><i>Application: During the presentation the student describes the use of at least four technological resources of at least two types to research, prepare, and present the newsletter. The resources are well chosen and the information acquired is extensive and correct. (HSMT D 3.5)</i></p>	<p>Sample- (Standard 4.5) Know how to interpret technical materials and medical instrumentation used for health care practices and policies.</p> <p><i>Applications: Appropriate instrument is selected to measure blood pressure, and appropriate cuff is selected for patient. All pulse points are correctly identified at first try. Appropriate scale is selected to measure blood pressure. (HSMT E 5.1)</i></p>	<p>Sample- (Standard 4.2) Understand the use of technological resources to gain access to, manipulate, and produce information, products and services.</p> <p><i>Application: Able to operate an electronic spreadsheet to input journal data and maintain appropriate balances. Able to design spreadsheets needed. (FB A 2.2)</i></p>	<p>Sample- (Standard 4.2) Understand the use of technological to gain access to, manipulate, and produce information, products and services.</p> <p><i>Application: Explanation of selected technique includes how imagery equipment works, what it is used for, and what hazards it poses for both patient and staff. Reasoning behind the selection of the technique is clear and logical. Brochure is clear and well illustrated. (HSMT B 4)</i></p>
5.0 PROBLEM SOLVING AND CRITICAL THINKING			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 5.4) Apply decision making skills to achieve balance in the multiple roles of personal, home, work, and community life.</p> <p><i>Application: Student uses decision making and problem solving skills extensively in mediation scenarios to help others recognize different points of view and find resolutions. (ECDFS D.8.2)</i></p>	<p>Sample- (Standard 5.1) Apply appropriate problem solving strategies and critical thinking skills to work related issues and tasks.</p> <p><i>Application: Determines correct format for the budget and correctly identifies categories for each budget item. (FB C 2.1)</i></p>	<p>Sample- (Standard 5.1) Apply appropriate problem solving strategies and critical thinking skills to work related issues and tasks.</p> <p><i>Application: Students use logic and critical thinking skills to produce a very accurate drawing from the model. Scale and proportion are replicated accurately through analysis and observation. (ED C 4.2)</i></p>	<p>Sample- (Standard 5.1) Apply appropriate problem solving strategies and critical thinking skills to work related issues and tasks.</p> <p><i>Application: Student uses logical reasoning, analytical thinking, and problem solving techniques to develop the entire case. Problem solving incorporates input, process, outcome, and feedback components. Employs these</i></p>

			<i>critical thinking skills when presented with unforeseen obstacles that occur during direct or cross-examination. (PS B 9.2)</i>
6.0 HEALTH AND SAFETY			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 6.3) Use tools and machines safely and appropriately.</p> <p><i>Application: Student follows all safety regulations without reminders and prompting. (TRANS B 9.4)</i></p>	<p>6.0 Health and Safety</p> <p>Sample- (Standard 6.5) Use tools and machines safely and appropriately.</p> <p><i>Application: Student demonstrates safe set-up, use, and storage of equipment and keeps the working area clear and safe.</i></p>	<p>Sample (Standard 6.4) Understand the safe and appropriate use of tools and equipment in the school manufacturing facility.</p> <p><i>Application: Student demonstrates safe workplace practices and material handling, machine operations, and handling of tooling, fluids, and lubricants. Student wears proper eye protection at all times. (MPD C 5.2)</i></p>	<p>Sample- (Standard 6.1) Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.</p> <p><i>Application: The answers include specific, detailed information about potential mistakes in the handling of each food item. Include correct, complete citations from the health code of each answer. (HTR B 3.4)</i></p>
7.0 RESPONSIBILITY AND FLEXIBILITY			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 7.4) Understand that individual actions can affect the larger community.</p> <p><i>Application: Student explains how to obtain permission to collect specimens. Student properly collects and reports specimens. (ANR G 1.2)</i></p>	<p>Sample- (Standard 7.1) Understand the qualities and behaviors that constitute a positive and professional work demeanor.</p> <p><i>Application: Student demonstrates enthusiasm focus, and maturity throughout the project. Student is always on task. (MPD A 8.1)</i></p>	<p>Sample- (Standard 7.1) Understand the qualities and behaviors that constitute a positive and professional work demeanor.</p> <p><i>Application: Student demonstrates enthusiasm, focus, and maturity throughout the project. (MPD A8.1)</i></p>	<p>Sample- (Standard 7.6) Know how to apply high quality craftsmanship to a product or presentation and continually refine and perfect it.</p> <p><i>Application: Student produces an end product that has smooth, straight, and uniform beads/welds that overlap/penetrate, with no slag or creators present. (ANR B 8.3)</i></p>
8.0 ETHICAL AND LEGAL RESPONSIBILITIES			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 8.3) Understand the role of personal integrity and ethical behavior in the work place.</p> <p><i>Application: Student will participate in a class discussion regarding experiences of good and bad customer service. (ECDFS B 7.0)</i></p>	<p>Sample- (Standard 8.3) Understand the role of personal integrity and ethical behavior in the work place.</p> <p><i>Application: During debate and class-wide discussion, student displays a nuanced and in-depth understanding of integrity and ethical behavior in the work place and applies this knowledge logically and creatively to various examples and scenarios. (HSMT A 6.1)</i></p>	<p>Sample- (Standard 8.4) Adhere to the copyright and intellectual property laws and regulations and use and site proprietary information appropriately.</p> <p><i>Application: Written report names two or more influences and discusses how they influenced the project. Project is original and creative, and the use of the influences is likewise fresh and not derivative. (MDA A 1.4)</i></p>	<p>Sample- (Standard 8.2) Understand the concept and application of ethical and legal behavior consistent with workplace standards.</p> <p><i>Application: Knows there is a code complies with the code in practice, and can state the code requirements for particular operations. (BTC 6.2)</i></p>
9.0 LEADERSHIP AND TEAMWORK			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED

<p>Sample- (Standard 9.5) Understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for attitudes and feelings of others.</p> <p><i>Application: Teacher observes student taking leadership in organizing the group and coaching students on their assignments. (PS A 7.3)</i></p>	<p>Sample- (Standard 9.3) Understand how to organize and structure work individually and in teams for effective performance and attainment of goals.</p> <p><i>Application: Teacher observes student taking an active leadership role in developing responses for the scenario and working effectively with other group members. (HTR B 6.1)</i></p>	<p>Sample- (Standard 9.2) Understand the ways in which pre-professional associations, such as FHA-HERO, and competitive career development activities enhance academic skills, promote career choice, and contribute to employability.</p> <p><i>Application: Student prepares and delivers a highly rated, comprehensive, and thorough consumer education presentation. (ECDFS B 5.4)</i></p>	<p>Sample- (Standard 9.3) Understand how to organize and structure work individually and in teams for effective performance and attainment of goals.</p> <p><i>Application: Student effectively demonstrates leadership in organizing teams' assignment and structuring individual work. (MSS D1.3)</i></p>
10.0 TECHNICAL KNOWLEDGE AND SKILLS			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample- (Standard 10.6) Understand the process of making consumer decisions including the comparison of goods and services.</p> <p><i>Application: Student correctly identify the steps in the decision making process given a product. (ECDFS B 1.0)</i></p>	<p>Sample- (Standard 10.6) Apply the design process and the development, evaluation, and refinement of a manufacturing prototype.</p> <p><i>Application: Model is elegant and well crafted. Model functions efficiently and smoothly as designed. (MPD B 1.1)</i></p>	<p>Sample- (Standard 10.1) Know how to use a variety of business-and industry-standard software and hardware, including major proprietary and open standards.</p> <p><i>Application: Student uses industry-standard software to prepare detailed slide presentation with appropriate background design, slide transitions, and graphics. Detailed charts and graphs of research information are included. (IT C 2.3)</i></p>	<p>Sample- (Standard 10.7) Analyze the functions, features, and limitations of different operating systems, environments, applications, and utilities.</p> <p><i>Application: Analysis of mapping tools, functions, and features is thorough and detailed and focuses on business applications of the software with specific, detailed examples. The analysis completely communicates the processes observed and measured. (IT B 1.20)</i></p>
11.0 DEMONSTRATION AND APPLICATION			
EXPLORATORY	FOUNDATION	INTERMEDIATE	ADVANCED
<p>Sample-(Standard 11.0) Students gather, store, understand and apply knowledge and information.</p> <p><i>Application: Students will identify the industry sector and career pathway that best fits their personal profile of abilities, interests, and characteristics via completion of a CCTE career explorations course.</i></p>	<p>Sample- (Standard 11.0) Students use acquired knowledge to solve problems, design solutions, and complete work, applying their understandings to new and unpredictable situations.</p> <p><i>Application: Participate in a job shadow experience evaluating skills, abilities, characteristics and attitudes required for a specific career via reflective essay.</i></p>	<p>Sample- (Standard 11.0) Students extend and refine their acquired knowledge to be able to use that knowledge automatically and routinely to analyze and solve problems and create solutions.</p> <p><i>Application: Students will design, develop and present to a high stakes audience a culminating project using the skills, knowledge, and technology required for a specific career pathway.</i></p>	<p>Sample- (Standard 11.0) Students have the competence to think in complex ways and to apply their knowledge and skills. Even when confronted with perplexing unknown's students are able to use extensive knowledge and skill to create solutions and take action that further develops their skills and knowledge.</p> <p><i>Application: Students successfully complete an Internship in a selected industry sector/career pathway, completing a minimum of 40 hours per section.</i></p>

The 12 Key Areas For Strategic Implementation

The eleven commonly accepted indicators of high quality career technical education programs, and one programing specific item, comprise the 12 key areas for strategic implementation. These elements and components align with state standards, support professional development, model use of student data to inform instruction, promote enhanced teacher qualifications, encourage collaboration and provide guidance for targeted fiscal support.

1.0: Leadership at all Levels

Effective leadership is needed at every level, including the institutions' governing boards. Continuous leadership development is vital to sustaining and expanding programs.

2.0: High-Quality Curriculum and Instruction

Offer rigorous, integrated, technical, and academic content focused on careers that are intrinsically interesting to students and is delivered through applied, performance -and project-based teaching strategies that facilitate understanding and mastery.

3.0: Career Exploration and Guidance

Career exploration and guidance are central to success. They help ensure that students have access to information and experiences that allow them to envision a wide range of possibilities for their lives and to make informed decisions while in their educational programs and throughout their careers.

4.0: Student Support and Student Leadership Development

Students come to schools and colleges with a range of needs that must be addressed in order for them to succeed in their studies and transition to future endeavors. Course offerings must address the range of services and programs that support and reinforce technical and academic learning, with an emphasis on the relationships that make these programs work.

5.0: Industry Partnerships

The unique link between industry and education is an essential feature of these courses and distinguishes it from other types of instructional design and models. Industry partners play crucial roles in ensuring that the curricula are current and relevant, and that students and educators have opportunities to explore their interests and learn important skills in the workplace.

6.0: System Alignment and Coherence

It is essential that all the components of the entire system be effectively linked. System coherence and alignment incorporates several elements, including course sequencing, pathways, articulation, and coordination across sectors. The system alignment must:

- Incorporate secondary education and postsecondary education elements.
- Include coherent and rigorous content, aligned with academic standards and relevant career and technical content in a coordinated and non-duplicative progression of courses that align secondary education with postsecondary education to adequately prepare students to achieve.
- Include the opportunity for secondary education students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits.

7.0: Effective Organizational Design

Effective organizational design entails the development of organizational structures and processes that facilitate student access to programs, enable faculty to collaborate with one another, promote personalization, link students with business and industry for workplace learning, and encourage course and program completion.

8.0: System Responsiveness to Changing Economic Demands

For California's immense and diverse economy to retain its prosperity and competitive position in the global market, education must meet the demand for skilled workers in a wide range of industries. A demand-driven system is responsive to current workforce development needs and labor market realities and predictions. (*California State Plan for Career Technical Education, page 107*)

9.0: Skilled Faculty and Professional Development

Key elements of quality programs are the skills of its instructors and the existence of a sufficient pool of skilled instructors to adequately staff programs.

10.0: Evaluation, Accountability, and Continuous Improvement

Evaluation, accountability and continuous improvement are key to any system or program improvement process. This process must focus on utilizing, aligning, and expanding upon existing systems, and must emphasize program improvement along with reporting of compliance-driven data. Such a system is intended to drive improvement for the benefit of students, businesses, communities and taxpayers statewide.

11.0: CTE Promotion, Outreach and Communication

In order to ensure continued support for these programs, its benefits must be validated and made more widely known to student, parents, educators, counselors, community members, and policymakers. This plan makes explicit the need to clearly communicate the myriad of benefits of these programs to students, employers, state and regional economies, and communities based on evidence of its impact.

12.0: Short, Interim and Long-Term Planning for Systemic Implementation, Operations, Special Projects, and Resource Allocation

To drive systemic innovation, clear measurable goals on actionable timelines must be established to ensure that quality programming is systemically implemented in each school cluster within the district. This will be achieved by the streamlining of operations, special project planning and developing a comprehensive plan for strategic resource allocation and program placement.

(Selections from this section reflect excerpts from the California State Plan for Career Technical Education and the CTE Strategic Plan for Excellence)