CAR 801E

Career and Technical Education

Carpentry Technology

Carpenter Apprenticeship Prep

Curriculum Guide

Prince Edward Island
CANADA
Education, Early Learning and Culture

THIS PAGE IS INTENTIONALLY BLANK

Acknowledgements

The Prince Edward Island Department of Education, Early Learning and Culture (DEELC) of Prince Edward Island gratefully acknowledges the contributions of the following individuals in the development of the Prince Edward Island CTE Carpentry curriculum guides.

John Stephens	Career and Technical Education Innovation Leader
Peter Conaughton	Montague Regional High School
Rob Deacon	Colonel Gray High School
Gary Pyke	Kensington Intermediate and Senior High School
Trevor LeClair	Westisle Composite High School

Further acknowledgement to all career and technical education teachers across Prince Edward Island for their experience and knowledge. The conversations and feedback received throughout the process was critical to the completion of this document.

Prince Edward Island
Department of Education, Early Learning and Culture
250 Water Street, Suite 101
Summerside, Prince Edward Island, Canada, C1N 1B6
Tel: (902) 438-4130, Fax: (902) 438-4062
www.gov.pe.ca/eecd/

Implementation September 2018

Table of Contents

Acknowledgements i
Table of Contents ii
Career and Technical Education 2
Curriculum Renewal 2
Importance of Career and Technical Education 2
Goals for Career and Technical Education 2
Course Descriptions 3
Essential Graduation Competencies (EGCs) 4
EGC Overview 4
EGC Definitions 5
Curriculum Design 6
General Curriculum Outcomes (GCOs) 6
Specific Curriculum Outcomes (SCOs) 7
Achievement Indicators (AIs) 7
Sample of Curriculum Page 8
Elaboration 9
Performance Indicators 9
Formative Assessment Guide 9
National Occupational Analysis 9
Bloom's Taxonomy 10
Knowledge Process Dimension 10
Cognitive Process Dimension 11
Technical Skill Dimension 12
SCO Structure 12
Taxonomy Tables 12
Curriculum Delivery 13
Instructional Strategies 13
Gradual Release of Responsibility 17
Curricular Planning Using Understanding by Design 18
The Evaluative Process 19
Assessment 19
Evaluation 21
STEAM Pedagogy 22
Steam Processes 23

Table of Contents

Unit A: Safety 26
Leadership 26
Elaboration 27
Unit B: Career Development 28
Career Engagement 28
Elaboration 29
Unit C: Tools and Materials 30
Technical Skill Development 30
Elaboration 31
Unit D: Carpentry Skills 32
Level 1 Carpenter Exam Challenge 32
Elaboration 33

Career and Technical Education

Curriculum Renewal

Renewal of curriculum begins with the common understanding that K-12 students must engage in learning that enables them to participate in a world of rapid and complex change. This dynamically evolving environment requires that students develop multiple literacies, increase depth of knowledge, and acquire a range of skills, attitudes, and abilities that foster creativity, innovation, and problem-solving skills.

Students must also develop a desire for personal and collective achievement and a willingness to collaborate for the well-being of themselves and others. It is essential that educators and administrators have an in-depth understanding of curricular expectations as part of a broader learning continuum.

Importance of Career and Technical Education

Career and Technical Education (CTE) provides relevance to learning and values the technical skills required to complete meaningful work as equally important to the academic skills required. This blend of thinking and doing is fundamental for CTE students to fully comprehend and demonstrate competency within CTE programming. The false dichotomy between hands-on and heads-on education is no longer relevant to modern education systems or modern economic systems. The current labour market demands that people have the ability to acquire skills, build proficiency, seek out critical knowledge, and adapt to an ever-changing landscape. To this end, students must be lifelong learners who commit to cultivating their knowledge and skills through a combination of experience and education.

High quality Career and Technical Education programs prepare students for success by incorporating rigorous academic and technical skills, essential workplace competencies, and a commitment to career education. Thinking and doing are not at odds; rather each is critical for the development of the other and the success of the learner.

Career and Technical Education curricula are designed to foster the development of all learners as technologically literate and capable citizens who possess the technical skills, strategic knowledge, and agility required in the development of innovative and responsible solutions to relevant technical problems and the career awareness required to transition to further education and work after secondary school.

Goals for Career and Technical Education

Students will develop

- the technical skills, confidence, and employability skills needed to gain employment within their area of interest along with the critical thinking and problem-solving skills required to sustain employment.
- the academic skills required to further their education and to embrace the ever-changing reality of technical work as active learners and innovators with an entrepreneurial spirit.
- the knowledge, skills, and attitudes that will enable the agility required to be actively engaged in the development and implementation of their own career plans.

> "If, instead of keeping a child at his books, I keep him busy in a workshop, his hands labor to his mind's advantage: while he regards himself only as a workman he is growing into a philosopher."
>
> Jean Jacques Rousseau
> Emile; or, Concerning Education
> p. 140, 1889.

Course Descriptions

CAR701A - Introduction to Carpentry Technology (prerequisite for all 800 level CTE-Carpentry courses)

Introduction to Carpentry Technology is a project based course where students can expect to be engaged in carpentry projects that will develop their technical skills and challenge their critical thinking. CAR701A provides students the opportunity to develop technical skills with tools, equipment, and safe work practices within a carpentry setting. Students will be challenged to apply math concepts to solve technical problems and develop their literacy skills through design and drawing techniques. Students are expected to develop safe work habits, effective time/project management skills, and work effectively with others.

CAR801A - Framing Systems Level I (prerequisite courses for CAR801B - Framing Systems Level 2)

Framing Systems Level 1 is a project based course that introduces students to the fundamentals of framing within the Carpenter trade. Students will develop technical skills related to wall and floor framing and develop knowledge related to the effect forces have on, and how forces are transferred through, structures. Students are expected to develop safe work habits, effective time/project management skills, and work effectively with others.

CAR801B - Framing Systems Level II

Framing Systems Level 2 builds on the technical skills introduced in the Framing Skills Level 1 course. Students are expected to perform framing tasks with an increased proficiency and be able to articulate why particular techniques are used in different situations. Students will explore the building envelope and understand its implication related to framing and structures. Students are expected to continue to develop safe work habits, effective time/project management skills, and work effectively with others.

CAR801C - Construction Skills Level I (prerequisite courses for CAR801D - Construction Skills Level 2)

Carpentry Skills Level 1 is a project based course designed to introduce students to the wide range of carpentry and construction skills required when working within the carpentry trade. Students are expected to develop their technical skills related to the safe operation of common woodworking tools, technical drawings, and essential skills required within the Carpenter trade. Students are expected to develop safe work habits, effective time/project management skills, and work effectively with others.

CAR801D - Construction Skills Level II

Carpentry Skills Level 2 builds on the technical skills and knowledge introduced in the Level 1 course. Students are expected to perform construction and carpentry related projects/tasks with a high level of technical skills and be able to articulate why particular techniques are used in different situations. Students are expected to continue to develop safe work habits, effective time/project management skills, and work effectively with others.

CAR801E - Carpenter Apprenticeship Prep

Carpentry Apprenticeship is designed to provide students who are considering a future career related to the skilled trades, an understanding of the skills, and knowledge expected from an apprentice. The course will provide students an opportunity to explore the full range of topics expected from a level 1 Carpenter apprentice. Students will work on projects that support the continued development of their technical skills while becoming more articulate in their knowledge related to the carpentry trade.

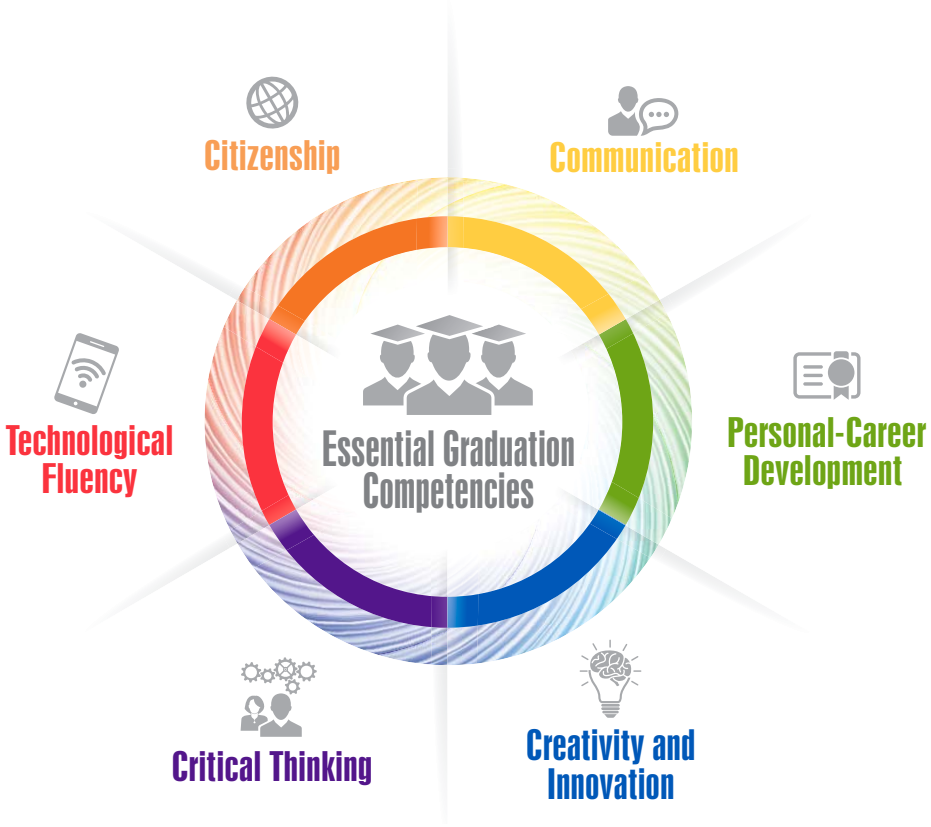
Students wanting to challenge the Level 1 Apprenticeship Exam for Carpenter will require this course + a minimum of 4 other CTE-Carpentry courses. The students average in all courses must be at or above 70% to qualify to challenge the Apprenticeship Exam.

Essential Graduation Competencies (EGCs)

EGC Overview

Curriculum is designed to articulate what students are expected to know and be able to do by the time they graduate from high school. The PEI Department of Education, Early Learning and Culture designs curriculum that is based on the Atlantic Canada Framework for Essential Graduation Competencies released by the Council of Atlantic Ministers of Education and Training (CAMET) in 2015.

Competencies articulate the interrelated sets of attitudes, skills, and knowledge—beyond foundational literacy and numeracy—that prepare learners to successfully participate in lifelong learning and life/work transitions. They are cross-curricular in nature and provide opportunities for interdisciplinary learning. Six competencies have been identified by CAMET: citizenship, communication, personal-career development, creativity and innovation, critical thinking, and technological fluency (Figure 1). Achievement of the essential graduation competencies (EGCs) will be addressed through the assessment and evaluation of curriculum outcomes developed for individual courses and programs.



EGC Definitions

Critical Thinking

Learners are expected to analyse and evaluate evidence, arguments, and ideas using various types of reasoning and systems thinking to inquire, make decisions, and solve problems. They reflect critically on thinking processes.

Technological Fluency

Learners are expected to use and apply technology to collaborate, communicate, create, innovate, learn, and solve problems. They use technology in a legal, safe, and ethically responsible manner.

Citizenship

Learners are expected to contribute to the quality and sustainability of their environment, communities, and society. They analyse cultural, economic, environmental, and social issues; make decisions and judgments; and solve problems and act as stewards in a local, national, and global context.

Communication

Learners are expected to express themselves and interpret effectively through a variety of media. They participate in critical dialogue, listen, read, view, and create for information, enrichment, and enjoyment.

Personal-Career Development

Learners are expected to become self-aware and self-directed individuals who set and pursue goals. They understand and appreciate how culture contributes to work and personal life roles. They make thoughtful decisions regarding health and wellness, and career pathways.

Creativity and Innovation

Learners are expected to demonstrate openness to new experiences; to engage in creative processes; to make unexpected connections; and to generate new and dynamic ideas, techniques, and products. They value aesthetic expression and appreciate the creative and innovative work of others.

Curriculum Design

General Curriculum Outcomes (GCOs)

General curriculum outcome statements articulate what students are expected to know and be able to do upon completion of study in technology education. These statements provide a concise description of the student as a technologically literate and capable citizen.

Technological Problem Solving

Students will be expected to design, develop, evaluate, and articulate technological solutions.

Technological problem solving incorporates a variety of strategies and processes, consumes resources, and results in products and services. Technological problem solving constitutes one of the most important ways in which students engage in technological activity.

Technological Systems

Students will be expected to operate and manage technological systems.

Technological systems are the primary organizational structure for products and services. Understanding the nature of systems and understanding how to employ, moderate, and re-structure systems are important components of technological literacy and capability.

History and Evolution of Technology

Students will be expected to demonstrate an understanding of the history and evolution of technology, and its social and cultural implications.

Technology, like many other areas of human endeavour, is often best understood in its historical context. Technology has had and continues to have profound effects on individuals, society, and the environment. Understanding the origins and effects of a particular technology provides a context for resolving today's problems and issues, and often leads to better solutions.

Technology and Careers

Students will be expected to demonstrate an understanding of current and evolving careers and the influence of technology on the nature of work.

All jobs, occupations, careers, and professions exist in technological environments. An understanding of the range of technologies in the workplace and their effects on the nature of work is critical to planning career and education paths.

Technological Responsibility

Students will be expected to demonstrate an understanding of the consequences of their technological choices.

The development of technology, and by extension its impact in the future, is entirely under human control. Individually and collectively, we share that responsibility. Accepting the responsibility and being empowered to take appropriate action require technological literacy and technological capability (knowledge, skills, and willingness).

Specific Curriculum Outcomes (SCOs)

Specific curriculum outcomes state the intended outcomes of instruction, and identify what students are expected to know and be able to do for a particular unit or course. SCOs provide the goals or targets of the prescribed education program referenced in 71(a) of the PEI Education Act. They provide a focus for instruction in terms of measurable or observable student performance and are the basis for the assessment of student achievement across the province. PEI specific curriculum outcomes are developed with consideration of Bloom's Taxonomy of Learning and essential graduation competencies.

Specific curriculum outcomes will begin with the phrase, "Students are expected to …".

Achievement Indicators (AIs)

Each specific curriculum outcome is described by a set of achievement indicators which help to support and define the depth and breadth of the corresponding SCO when taken as a set.

The set of achievement indicators provided for a specific curriculum outcome

- provides the intent (depth and breadth) of the outcome;
- tells the story, or creates a picture, of the outcome;
- defines the level and types of knowledge intended by the outcome;
- is not a mandatory checklist, prioritized list of instructional activities, or prescribed assessment items; and
- may include performance indicators.

The intent of AIs is for clarity and understanding, so that instructional design is aligned with the SCO. When teachers are planning for instruction, they must be aware of the set of indicators in order to fully understand the depth and breadth of the outcome. Teachers may substitute or add to the set of AIs as long as these additions maintain the integrity of the SCO. By constantly analysing and monitoring the needs of the students, teachers can determine which indicators are appropriate and relevant to prior knowledge, developmental stages, or the continuum of the scholastic year.

Lists of achievement indicators will begin with the phrase, "Students who have achieved this outcome should be able to …".

Sample of Curriculum Page

CTE

Apprenticeship Preparation
CAR801E

Technical Skill Dimension					Leadership		Knowledge Dimension			
Naturalization	Articulation	Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				1.3, 1.5
						Analysing				1.2
A.1					Critical Thinking	Evaluating			1.1	1.4, 1.11
						Creating				1.6, 1.7, 1.8, 1.9, 1.10

Targeted Level for Assessment of SCO

SCO - Specific Curriculum Outcome

Unit A: Safety
Leadership

A.1	Students are expected to … **develop personal leadership attributes and skills that enhance self and others when working in the CTE-Carpentry facility.**

Achievement Indicators

Students who have achieved this outcome should be able to

AIs - Set of Achievement Indicators for SCO

- A.1.1 ensure safe work practices are followed to provide for the personal safey, the safety of others, and to prevent accidents;
- A.1.2 analyse the potential impact (positive and negative) of their presentation of self on their ability to help others be successful in the CTE-Carpentry Program (e.g., online presence of self, reputation, treatment of others, approach to work);
- A.1.3 practise attributes, skills, and styles that contributes to the development of their leadership skills;
- A.1.4 support others to cultivate their technical skills and knowledge within the CTE-Carpentry class and know when to seek support to cultivate their own (e.g., feedback, clear direction, flexible);
- A.1.5 practise effective verbal and non-verbal communication skills and strategies to provide direction to individuals and/or groups within the CTE-Carpentry facility;
- A.1.6 exhibit positive social responsibility and self-management that respects self and others;
- A.1.7 exhibit resilient characteristics (e.g., determination, grit, flexibility, adaptability);
- A.1.8 exhibit responsibility for personal actions and act ethically;
- A.1.9 exhibit respect for community diversity and the individual rights and needs of others;
- A.1.10 exhibit independence and self-direction when appropriate; and
- A.1.11 model respect for everyone's right to participate.

Elaboration

An elaboration provides a fuller description of the SCO and the instructional intent behind it. It sets the parameters of the SCO, gives background information where possible, and offers a broader context to help teachers gain a deeper understanding of the scope of the SCO. This may also include suggestions and/or supporting resources that may be helpful in teaching the related outcome. Teachers should vet material for any inappropriate sidebars, questionable information, or redirected links.

Performance Indicators

Performance indicators are located in the Elaboration section of the guide. They are intended to provide the teacher with a wide range of activities, ideas, and/or tasks that students may be engaged with as they progress towards mastery of an outcome. Performance indicators are not prescriptive and are not a checklist. The list of performance indicators is by no means an exhaustive list of possible tasks a student may engage in as they are working towards the outcome. Performance indicators help teachers to connect the work the students are engaged in to particular outcomes within a course.

Formative Assessment Guide

The formative assessment guide provides teachers with a general description of what the students are able to do within the context of each unit at each level of technical skill development. Teachers can use this tool as a foundation when developing customized rubrics, checklists, or observation methods. Teachers can also use the language in the formative assessment guide when providing descriptive feedback to students on how well they are progressing towards the learning outcome.

National Occupational Analysis

Each elaboration will also contain a reference to the National Occupational Analysis (NOA), for the trade. This is provided to highlight which Tasks, Required Knowledge, and Sub-tasks are aligned to a particular set of outcomes. Teachers are encouraged to familiarize themselves with the NOA for their trade. The NOA is designed to facilitate understanding of the occupation and the work performed by tradespersons.

Bloom's Taxonomy

In 1956, Bloom, et.al., published a framework for the purpose of classifying expectations for student learning as indicated by educational outcomes. This unidimensional framework of cognitive processes became known as Bloom's Taxonomy. David Krathwohl's 2002 revision of this taxonomy introduced a second dimension, the knowledge dimension, that classified the type of knowledge described by an outcome. To fully understand a specific curriculum outcome, it is important to understand how the learning is representative of both the cognitive process and knowledge dimensions.

Knowledge Process Dimension

The knowledge process dimension classifies four types of knowledge, ranging from concrete to abstract, learners may be expected to acquire or construct. The noun included in a specific curriculum outcome represents the knowledge process dimension.

	Explanation of Knowledge Level
Factual The basic elements students must know to be acquainted with a discipline or solve problems in it **KNOWING THAT**	• knowledge of terminology (e.g., technical vocabulary, name of equipment) • knowledge of specific details and elements (e.g., general shop safety procedures, operating procedures)
Conceptual The interrelationship among the basic elements within a larger structure that enables them to function together **KNOWING WHAT and WHY**	• knowledge of classifications and categories (e.g., types of tools, equipment, and materials) • knowledge of theories, models, and structures (e.g., building envelop, selecting materials)
Procedural How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods **KNOWING HOW**	• knowledge of subject-specific-skills and algorithms (e.g., technical skills with tools, wall framing) • knowledge of subject-specific techniques and methods (e.g., safe operating procedures on stationary equipment) • knowledge of criteria for determining when to use appropriate procedures (e.g., work plans, procedures, bills of materials)
Metacognitive Knowledge of cognition in general as well as awareness and knowledge of one's own cognition **KNOWING HOW TO KNOW**	• strategic knowledge (i.e., knowledge of where to locate required information) • knowledge about cognitive tasks, including appropriate contextual and conditional knowledge (i.e., knowledge of the skills required to complete a task) • Self-knowledge (i.e., awareness of one's own knowledge and ability level)

Cognitive Process Dimension

The cognitive process dimension represents a continuum of increasing cognitive complexity, from lower order thinking skills to higher order thinking skills. The verb that begins a specific curriculum outcome represents the cognitive process dimension. The verbs listed under each cognitive process dimension represent the specific verbs used for SCOs or AIs within all six carpentry curricula. There is also a subject-specific definition of each cognitive process dimension that relates directly to carpentry technology.

Explanation of Cognitive Process Dimension	
Remembering	Retrieve, recall, and/or recognize specific information or knowledge from memory
	Students define terminology and locate equipment, tools, and safety requirements related to carpentry. Students follow protocols and procedures established within the carpentry facility.
Understanding	Construct meaning from different sources and types of information, and explain ideas and concepts
	Students can describe and/or explain the function and operation of tools, equipment, and procedures by reading, writing, and speaking. Students choose the correct procedure, tool, or resource to support their understanding of the knowledge and skill required to meet the outcome.
Applying	Implement or apply information to complete a task, carry out a procedure through executing or implementing knowledge
	Students execute a given task or work order when the procedure is provided. Students deepen their understanding of concepts by engaging their hands and practising their skills. Students communicate both orally and in writing, and are able to access information related to the carpentry tasks they are engaged in.
Analysing	Break information into component parts and determine how the parts relate or interrelate to one another or to an overall structure or purpose
	Students make the connection between the theory and the practice. Students begin to put together their understanding of building process, building science, design, and materials with their ability to complete carpentry tasks. Students will start to make connections between tasks and begin to transfer their knowledge to new situations. For example, when a student is demonstrating how to frame an interior wall partition they should be able to clearly demonstrate an understanding of both the theory and skills required to successfully complete the task.
Evaluating	Justify a decision or course of action, problem solve, or select materials and/or methods based on criteria and standards through checking and critiquing
	Students make decisions and select and adjust the working parameters independently to complete carpentry tasks. Students begin to respond to challenges and perform tasks with a combination of both skill and precision. For example, when a student is building a rafter they should be able to interpret information and troubleshoot problems as they arise. Students should also be able to reflect on jobs and critique their own, and others performance.
Creating	Form a coherent functional whole by skillfully combining elements together and generating new knowledge to guide the execution of the work
	Students construct carpentry projects safely, efficiently, and with precision. They develop solutions to carpentry design, repair, and/or renovation problems safely, efficiently, and precisely. Students begin to take responsibility for their own knowledge and skill as a carpenter and approach their work in an independent manner and with a proficiency of skill.

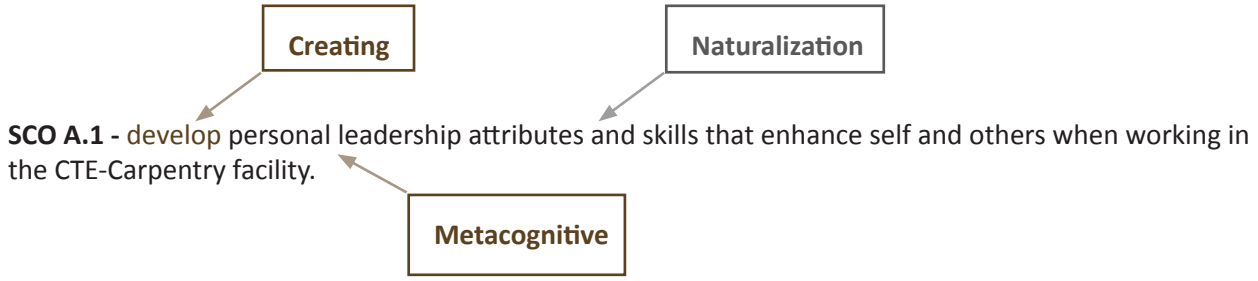
Technical Skill Dimension

The technical skill dimension, as defined by Dave's psychomotor taxonomy (1975), classifies five types of ways learners may be expected to demonstrate or carry out skilled tasks, procedures, or movements. This ranges from imitation, (where students mimic what they see modelled), through to naturalization, (where students perform tasks automatically and with high level of skill).

Explanation of Technical Skill Dimension	
Imitation	ability to copy or replicate the actions of others following observations
Manipulation	ability to repeat or reproduce actions to prescribed standard from memory or instructions
Precision	ability to perform actions with expertise and without interventions and the ability to demonstrate and explain actions to others
Articulation	ability to adapt existing psychomotor skills in a non-standard way, in different contexts, using alternative tools and instruments to satisfy need
Naturalization	ability to perform actions in an automatic, intuitive, or unconscious way appropriate to the context

SCO Structure

Examining the structure of a specific curriculum outcome is necessary to fully understand its intent prior to planning instruction and assessment. The Bloom's verb in the outcome relates to the expected level and type of thinking (cognitive process). A noun or phrase communicates the type of knowledge (i.e., factual, conceptual, procedural, or metacognitive) that is the focus of the outcome. The degree of technical skill is communicated through the remainder of the outcome and indicated on the Taxonomy Table.



Taxonomy Tables

Combining the three dimensions (cognitive process dimension, knowledge process dimension, and technical skill dimension), into one taxonomy table helps teachers to visualize the overall expectations of a course. As teachers reflect deeply and collaborate with each other to identify the types of knowledge required by each outcome, they will be better able to plan what student achievement will look, sound, and feel like in the learning environment. This clear visualization of the desired results (i.e., evidence of achievement of outcomes) assists teachers in planning learning experiences that will lead to student achievement of the outcome at the targeted level.

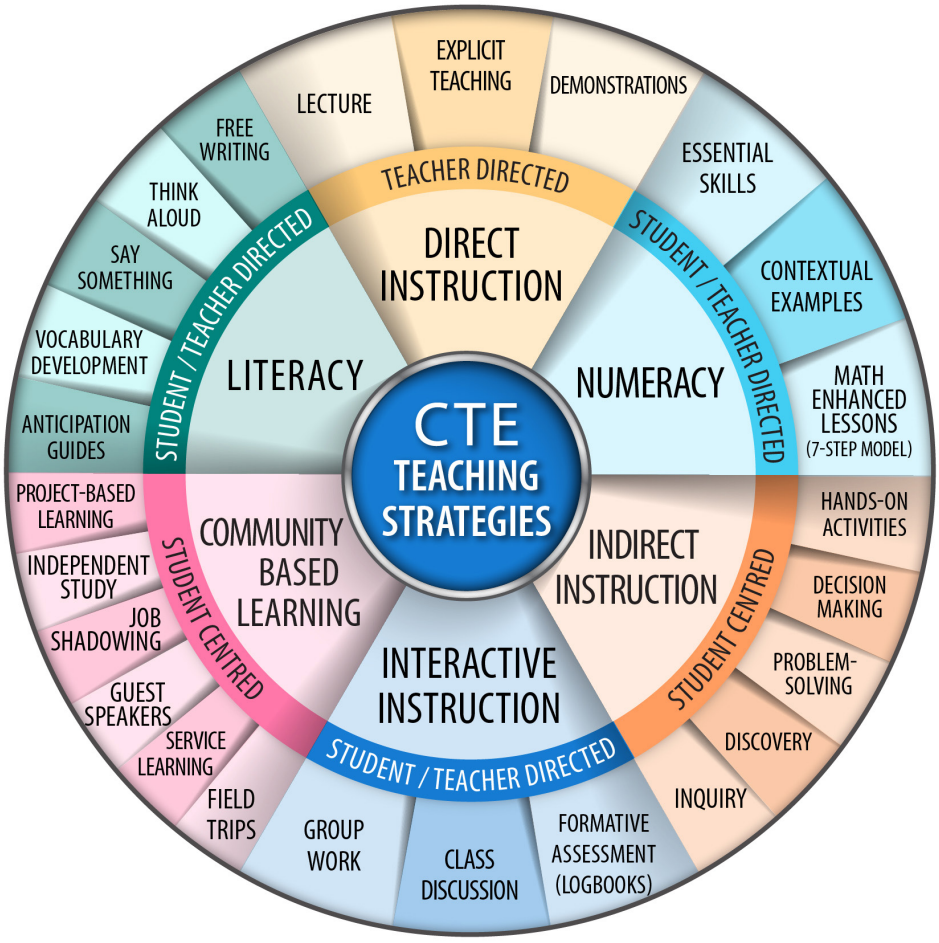
The taxonomy table for CAR 801E appears on page 25. Each outcome also has a taxonomy table that is specific to that outcome and the given achievement indicators. The table is located on the upper right-hand corner.

Curriculum Delivery

Instructional Strategies

Teaching is both a science and an art. There is a wealth of instructional strategies and methodologies described in the literature related to career and technical education that teachers have at their disposal when creating a learning environment that best suits the needs of their students.

Below is an instructional strategies wheel that is designed to identify a range of strategies that are effective when preparing lessons, assignments, and experiences for the career and technical education classroom. The list is not intended to be exhaustive, and CTE teachers are encouraged to continually read and engage in current research, pedagogy, and practice related to their field.



Literacy

Employing cross-curricular reading and writing strategies in the delivery of the curriculum will provide students with tools that will help them build knowledge and develop strategies to become more proficient in both their technical skills and their literacy skills. Integrating literacy into the CTE classroom is essential for students to develop strong connections between the practical skills and technical knowledge required.

Pre-Reading Strategies

Pre-reading strategies are used prior to assigning a reading and are designed to activate the students' prior knowledge on a subject, promote inquiry and discussion, provide clarity, and give the students reason to engage in the text. Examples include the following:

- FREE WRITING - This strategy provides students with a short amount of time to record what they already know or believe about the topic. Free writes should never be collected or evaluated. The only rule of the free write is that students write for the entire time allotted even if they run out of things to say.
- ANTICIPATION GUIDES - These guides consist of four or five statements about a topic that students are asked to either agree or disagree with prior to reading. The statements should be carefully crafted to raise the students' interest in the subject (so that all students do not respond in the same way), and be supported by the assigned reading. After reading, students should revisit and discuss their responses.

During-Reading Strategies

During-reading strategies are designed to promote active reading of the material. They provide students with specific tasks to complete or things to discover while reading the document. During-reading strategies can be used in small groups or as individual tasks.

- *THINK ALOUD* - Think Aloud is a very effective strategy to use when reading aloud to students. During the Think Aloud, it is important to model and reflect on how you yourself make meaning when reading challenging trade-related text, and how you relate the topic back to prior topics covered.
- *SAY SOMETHING* - Before assigning the Say Something, take time to model the strategy with a student or colleague and review the rules that will make for a successful Say Something. It is a good idea to post these rules so everyone can see them and be reminded of them during the activity.
    - *With your partner, decide who will say something first.*
    - *When you say something, make a prediction, ask a question, clarify something you had misunderstood, and/or make a connection.*
    - *If you cannot do one or more of the above things, then you need to re-read.*
- *RE-READING* - "Re-reading is probably the number one strategy independent readers use when something stumps them in a text. It's probably the last strategy dependent readers use" (Beers 2003, p.105). Before asking students to re-read a section of text, you must first set the activity up for success.
    - *Prove to students that re-reading is valuable to their learning. You can model this while doing a Think Aloud where you model your thinking as you interpret the text.*
    - *Provide the students with specific tasks to complete while they re-read a section.*
    - *Review the text as a group after everyone has re-read it.*

Post-Reading Strategies

Post-reading strategies are designed to provide students with opportunities to reflect on what they have read and make links to their learning.

- *LEARNING JOURNALS* - These journals provide a forum through which students can record and document their learning.
- *SUMMARIZING* - Summarizing is an effective strategy to use prior to having students complete an assigned task in the shop. This provides students with an opportunity to describe what they are going to do and how they plan to accomplish it. This may be done in written form or orally, depending on the given task.

Math in CTE

The National Council of Teachers of Mathematics states that wanting all students to learn math does not mean that all students can or should learn math in the same way.

The National Research Center for Career and Technical Education (NRCCTE) has developed the Math in CTE model that addresses and makes explicit the math concepts as they arise naturally from the CTE curriculum. Math is an essential component of CTE curriculum and is an essential tool required to perform the tasks of given occupations (NRCCTE 2006).

One of the challenges in teaching contextual math in CTE is that students are unable to transfer the math skills and knowledge to a new situation, as it is too embedded in the original context (NRCCTE 2006). The Math in CTE model addresses this challenge by bringing the math skill out of context and into the abstract, so that students may develop the understanding behind what they are learning, and then the model continues to provide opportunities for students to apply the knowledge in context.

By making explicit the math that is incorporated into the CTE context, students are able to make connections to their math classes and develop their transferable math skills.

Math in CTE 7-Step Model

Below is the 7-step Math in CTE model that will enable CTE teachers to identify the math skills covered in their lessons, develop a math-enhanced lesson, and assess the students' math abilities.

Introduce technical lesson.

- Explain the technical lesson.
- Identify the math embedded in the lesson.

Assess students' math awareness.

- Use a formative assessment.
- Assess whether students use the correct mathematical terms when discussing the lesson topic.
- Use a variety of questioning/discussion techniques to determine students' math awareness.

Work through math problems related to the technical lesson.

- Connect the technical vocabulary to the math vocabulary and gradually integrate the two, being sure to not abandon either set.

Work through related contextual examples.

- Use examples with varying levels of difficulty.
- Continue to bridge the gap between the technical concept and the math skills.
- Check for understanding.

Work through traditional math examples.

- Provide students with an opportunity to practise using a worksheet of basic math problems as they would appear on a test.
- Move from basic to advanced examples.
- Check for understanding.

Have students demonstrate understanding.

- Provide students with the opportunity to relate the math concept back to CTE context.
- Conclude the math lesson back in the context of the technical lesson.

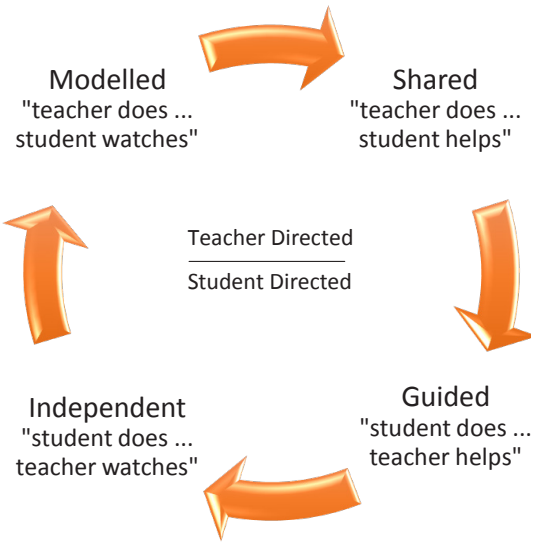
Assign a formal assessment.

- Include math problems in formal assessments of the technical lesson.

Gradual Release of Responsibility

Teachers must determine when students can work independently and when they require assistance. In the *gradual release of responsibility* approach, students move from a high level of teacher support to independent practice. The teacher models a concept or strategy and makes explicit the thinking he/she engages in when choosing and applying the strategy in a specific context. The teacher gradually releases the responsibility through a phase of shared and guided practice that leads the student to independence. If necessary, the teacher increases the level of support when students need further assistance. Gradual release is a useful strategy to employ. The graphic below provides a visual representation of this process.

Teachers may wish to begin the process at any point in the cycle. For example, teachers may provide a diagnostic assessment (independent stage) to establish what students know prior to teaching in order to determine which practices need to be modelled and which ones the students are able to perform independently.



Curricular Planning Using Understanding by Design

Understanding by Design (UbD) is often referred to as backward design. UbD is a curricular planning model developed by American educators Grant Wiggins and Jay McTighe. The main premise is that learning, and hence understanding, must be demonstrated through *transference*—the ability to apply what has been learned to a new situation or problem. In order to assess the level of learning, it is necessary to plan instruction as a backward experience of three stages beginning with the *end-in-mind* or the desired results, moving to the second stage of *evidence-of-learning* or assessment, and ending with the *learning plan* or the activities that will engage students and scaffold them toward the end result or *performance task*.

Basics of UbD

- helps transform specific curriculum outcomes (SCOs) into meaningful learning elements and assessments
- encourages teachers to become coaches and facilitators of meaningful learning rather than purveyors of superficial content
- reveals learning when students make sense of, and are able to transfer, learning to new and authentic situations
- requires ongoing review of instructional design to ensure effective practice and continuous improvement for achievement
- promotes a way of thinking about curricular planning in a broader sense, not a rigid program or prescriptive plan
- ensures deeper student understanding by making meaning from big ideas
- overcomes instructional errors associated with simplified textbook coverage and activity-oriented teaching (activity without a clear purpose)

Stage 1 Desired Results	Stage 2 Evidence	Stage 3 Learning Plan
The knowledge, skills, and attitudes that are articulated in specific curriculum outcomes (SCOs) are identified.	Performance tasks and criteria are determined. *Performance tasks* should be authentic tasks that are designed to simulate or replicate real-world performances and establish a realistic context with a genuine purpose, audience, and constraints. *Performance criteria* will provide the evidence of learning that is needed to assess the learning. Criteria can be weighted and include the following: • **Content** - aptness, adequacy, or accuracy of knowledge and skills used • **Process** - the means, processes, attitude, or approaches taken in the performance or in the preparation for performance • **Quality** - attention to detail, polish, and craftsmanship • **Impact** - Did the performance work? What was its effect, its result, its outcome - irrespective of effort, attitude, and approach?	In the final stage, the sequence of learning activities that will scaffold students toward the performance task and understanding are planned.

The Evaluative Process

Assessment and evaluation are integral components of the teaching and learning processes.

Effectively planned evaluation promotes learning, builds confidence, and develops students' understanding of themselves as learners. Effectively planned assessment and evaluation also improves and guides future instruction and learning.

Through the entire evaluative process, the teacher reflects on the appropriateness of the assessment techniques used to evaluate student achievement of the SCOs. Such reflection assists the teacher in making decisions concerning adjustments to subsequent instruction, assessment, and evaluation.

Effective and authentic assessment involves

- designing performance tasks that align with specific curriculum outcomes;
- including students in determining how their learning will be demonstrated; and
- planning for the three phases of assessment (*for*, *as*, and *of* learning).

Assessments need to be reflective of the cognitive process(es) and level(s) of knowledge and skill indicated by the outcome. An authentic assessment will collect data at the level for which it is designed.

Whether conducting assessment for learning or assessment of learning, a teacher must have sufficient proof of a student's learning. By using a process known as triangulation, teachers can obtain data of student learning from three different sources, (i.e., observations, conversations, and products), thereby ensuring sufficient data is collected in order to evaluate student learning. Observations and conservations are more informal forms of evidence that may be, for example, recorded as anecdotal notes. Products include tests, projects, or other tasks that enable students to demonstrate what they know and can do at the end of the learning process. By collecting data from multiple sources, teachers are able to verify the data they collect against each other, thus allowing them to gain an accurate portrayal of student progress.

Effective evaluation involves considering the totality of the assessment data and interpreting it to make informed judgments about student learning.

Assessment

Assessment is the act of gathering information on an ongoing basis in order to understand students' individual learning and needs. It is the journey of their learning.

Effective assessment improves the quality of learning and teaching. It helps students to become self-reflective and to feel in control of their own learning, and enables teachers to reflect on and adjust their instructional practices. When students are given opportunities to demonstrate what they know and what they can do with that knowledge, optimal performance can be realized.

Assessment has three interrelated purposes:

- assessment *for* learning to guide and inform instruction
- assessment *as* learning to involve students in self-assessment and setting goals for their own learning
- assessment *of* learning to determine student progress relative to curriculum outcomes

Even though each of the three purposes of assessment requires a different role and planning for teachers, the information gathered through any one purpose is beneficial and contributes to an overall picture of an individual student's achievement.

All assessment practices should respect the needs of diverse learners and should respect and appreciate learners' cultural diversity. Teachers should provide students with a variety of ways to demonstrate on an ongoing basis what they know and are able to do with many different types of assessment over time. Valuable information about students can be gained through intentional conversations, observations, processes, performance, and products. A balance among these sources ensures reliable and valid assessment of student learning.

Effective assessment strategies

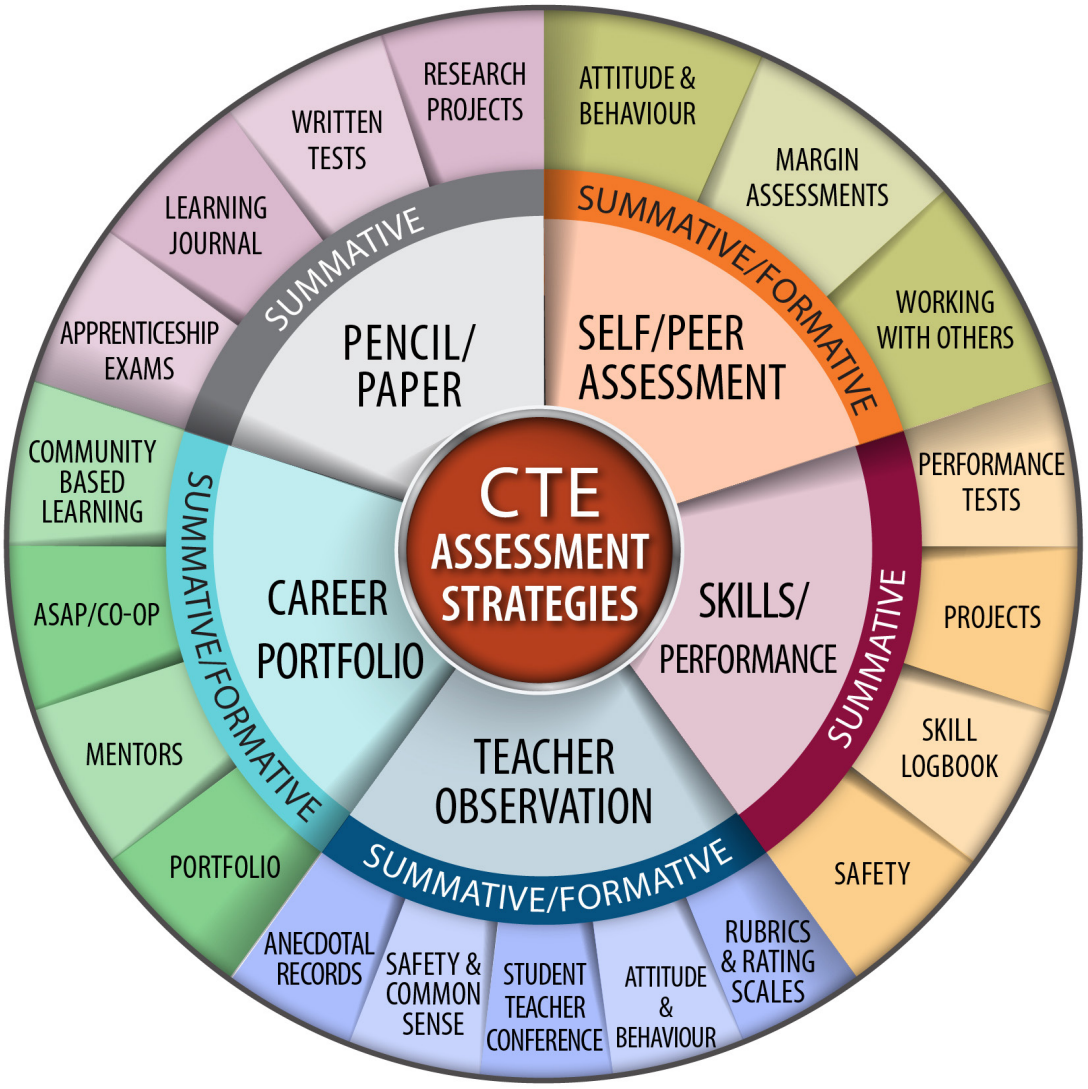
- are appropriate for the purposes of instruction, the needs and experiences of the students, and learning strategies used;
- assist teachers in selecting appropriate instruction and intervention strategies to promote the gradual release of responsibility;
- reflect where the students are in terms of learning and help to determine the levels and types of support or instruction that will follow;
- allow for relevant, descriptive, and supportive feedback that gives students clear directions for improvement, and engages students in metacognitive self-assessment and goal setting that can increase their success as learners;
- are explicit and communicated to students and parents so students know expectations and criteria to be used to determine the level of achievement;
- must be valid in that they measure what they intend to measure and reliable in that they consistently achieve the same results when used again, or similar results with a similar group of students;
- involve students in the co-construction, interpretation, and reporting of assessments by incorporating their interests, multiple intelligences, and learning styles;
- accommodate for the diverse learning needs of students; and
- are comprehensive and enable all students to have diverse and multiple opportunities to demonstrate their learning consistently and independently.

Students should know what they are expected to learn as designated by SCOs and the criteria that will be used to determine the quality of their achievement.

This information allows students to make informed choices about the most effective ways to demonstrate what they know and are able to do. It is important that students participate actively in assessment by co-creating criteria that can be used to make judgments about their own learning. Assessment must provide opportunities for students to reflect on their progress, evaluate their learning, and set goals for future learning. Students may benefit from examining various scoring criteria, rubrics, and student exemplars.

Student involvement in the assessment process can be achieved by

- incorporating students' interests into assessment tasks (e.g., allowing students to select and read texts that relate to their interests);
- providing opportunities for students to self-assess their learning; and
- co-creating assessment criteria with the student, working to describe how a specific skill or product is judged to be successful; and using student exemplars to illustrate a range of skill development (i.e., practise using the assessment criteria to guide their own work).



Evaluation

Evaluation is the culminating act of interpreting the balanced information gathered through relevant and authentic assessments for the purpose of making judgments.

Inherent in the idea of evaluating is "value." **Evaluation is based on the cumulative assessments of the SCOs. The SCOs should be clearly understood by learners before instruction, assessment, and evaluation takes place.** Evaluation is informed by a quality, authentic formative and summative assessment process.

During evaluation, the teacher:

- interprets all assessment information and makes judgments about student progress;
- reports on student progress; and
- makes informed decisions about student learning programs based on the judgments or evaluations.

STEAM Pedagogy

The acronym STEAM represents Science, Technology, Engineering, Art, and Math. STEAM education is a pedagogical approach which provides students the opportunity to integrate learning associated with these five disciplines while solving meaningful problems.

The original acronym, STEM was introduced in the 1990s by the National Science Foundation. The 'A' was added to STEM in recognition that creative thinking normally associated with art is as necessary as analytical thinking when solving problems in science, engineering, and technology. The ability to think mathematically is also an integral aspect of these three fields.

Problem-solving is an iterative, multi-layered and multi-stepped process that requires flexible thinking patterns (Figure 12). The analytical thinking component involves selecting, gathering, sorting, comparing, and contrasting information. Analytical thinking is convergent thinking which helps to identify and narrow possible solutions. Creative thinking is required to solve broad, open-ended problems that do not have a readily apparent solution and are not single-outcome specific. Creative processes involves divergent thinking or out-of-the-box thinking. A creative thinker may consider solutions that are based on intuition and emotion rather than logic. Creative solutions can also arise from observation, inspiration, and serendipity. STEAM activities are designed to encourage the flexibility to move back and forth between these two cognitive processes. They also support the development of other habits of mind necessary for STEAM such as persistence and resilience.

Selected Habits of Mind and Skills Encouraged by STEAM

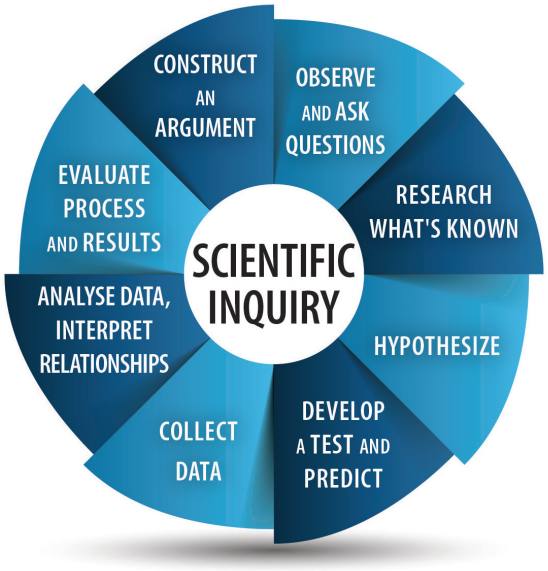
- creativity
- innovation
- persistence
- resilience
- flexibility
- collaboration
- communication
- critical thinking
- analytical thinking
- manipulative skills
- digital fluency

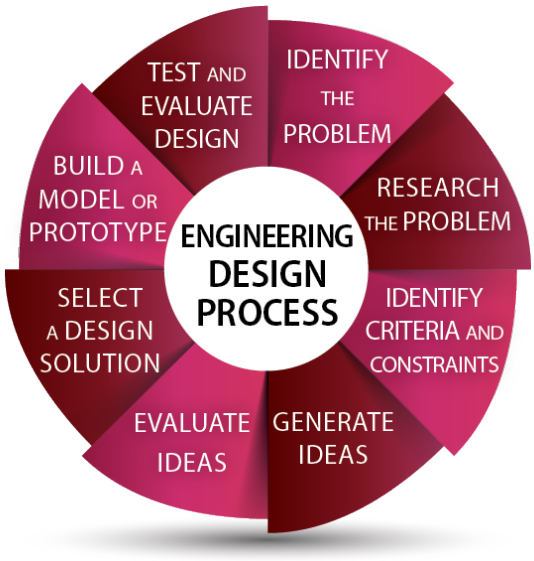
All five disciplines do not have to be targeted at the same time during a STEAM activity. To obtain the benefit of STEAM-based instruction, the problem presented should not have a readily apparent solution or be single outcome specific. The problem should be open-ended and designed in a way that the learner has more than one possible path to the solution. Productive struggle and reflection should be encouraged.

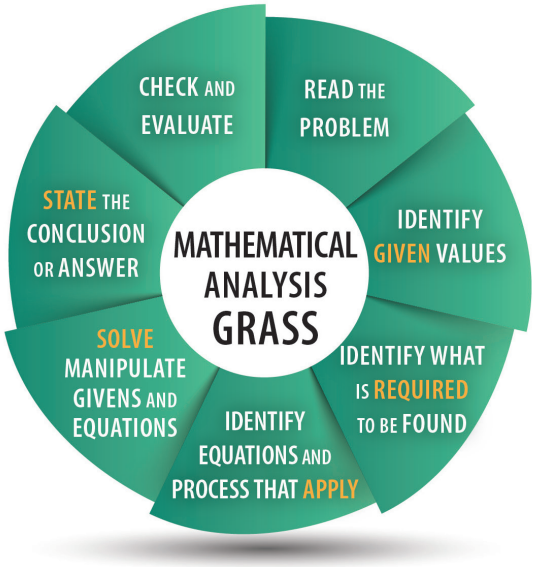
Problem-Solving Component	S	T	E	A	M
	Science	Technology	Engineering	Art	Mathematics
Nature of Problem	Extending our understanding of the natural world	Developing ways to extend human capacity	Addressing a human need or concern	Expressing and interpreting human perception	Discovering mathematical relationships
Name of Process	Scientific Inquiry	Technology Design	Engineering Design	Creative Process	Mathematical Analysis
Initial Question	What causes...?	How can I...?	How can I make...?	Imagine if...	What is the relationship...?
Solutions and Products	Communications of new knowledge	Digital products, digital processes	Structures, equipment, machines, processes	Aesthetic expression, products, processes	Numerical solutions, equations

Steam Processes

STEAM problem-solving processes (i.e., scientific inquiry, technology and engineering design, the creative process, and mathematical analysis) differ in the nature of the question and the solution or product. However, all are based on the generic problem-solving process. All are iterative processes that involve reflection, evaluation, and feedback throughout. All require analytical thinking and creative thinking. The figures below compare the problem-solving processes for science, engineering, art, and math.







Career & Technical Education

Carpentry Technology

Apprenticeship Preparation

Course Description

Carpentry Apprenticeship is designed to provide students who are considering a future career related to the skilled trades, an understanding of the skills, and knowledge expected from an apprentice. The course will provide students an opportunity to explore the full range of topics expected from a level 1 Carpenter apprentice. Students will work on projects that support the continued development of their technical skills while becoming more articulate in their knowledge related to the carpentry trade.

Students wanting to challenge the Level 1 Apprenticeship Exam for Carpenter will require this course + a minimum of 4 other CTE-Carpentry courses. The students average in all courses must be at or above 70% to qualify to challenge the Apprenticeship Exam.

Taxonomy Table

Technical Skill Dimension					CAR 801E		Knowledge Dimension			
Naturalization	Articulation	Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				
						Analysing				
A.1, B.1, C.1, D.1					Critical Thinking	Evaluating				B.1, C.1, D.1
						Creating				A.1

Technical Skill Dimension					Leadership		Knowledge Dimension			
Naturalization	Articulation	Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				1.3, 1.5
						Analysing				1.2
A.1					Critical Thinking	Evaluating			1.1	1.4, 1.11
						Creating				1.6, 1.7, 1.8, 1.9, 1.10

Unit A: Safety
Leadership

A.1	Students are expected to… **exhibit personal leadership attributes and skills that enhance self and others when working in the CTE-Carpentry facility.**

Achievement Indicators

Students who have achieved this outcome should be able to…

A.1.1 ensure safe work practices are followed to provide for the personal safey, the safety of others, and to prevent accidents;

A.1.2 analyse the potential impact (positive and negative) of their presentation of self on their ability to help others be successful in the CTE-Carpentry Program (e.g., online presence of self, reputation, treatment of others, approach to work);

A.1.3 practise attributes, skills, and styles that contributes to the development of their leadership skills;

A.1.4 support others to cultivate their technical skills and knowledge within the CTE-Carpentry class and know when to seek support to cultivate their own technical skills (e.g., feedback, clear direction, flexible);

A.1.5 practise effective verbal and non-verbal communication skills and strategies to provide direction to individuals and/or groups within the CTE-Carpentry facility;

A.1.6 exhibit positive social responsibility and self-management that respects self and others;

A.1.7 exhibit resilient characteristics (e.g., determination, grit, flexibility, adaptability);

A.1.8 exhibit responsibility for personal actions and act ethically;

A.1.9 exhibit respect for community diversity and the individual rights and needs of others;

A.1.10 exhibit independence and self-direction when appropriate; and

A.1.11 model respect for everyone’s right to participate.

Elaboration

It is expected that student who enroll in the CAR801E program take on a Leadership role within the other Carpentry Programs. This requires that the 801E students have a scheduled block of time in the Carpentry facility when either CAR701A or any of the 800 level carpentry programs are being taught.

The CAR801E students are expected to model best practices when working in the shop with a particular focus on modelling

- Safe work practices
- Work ethic and attitude
- Time on task and time management
- Shop maintenance and housekeeping
- Management of tools and materials
- Supporting the technical skill development of peers

Students are to use this time in the shop to support their personal technical skill development (outcome C.1) and also demonstrate the leadership skills expected of a student who is in their 5th (or possibly 6th) Carpentry course.

Students are expected to become aware of how they present themselves both inside and outside of the carpentry class and how this presentation of self impacts their leadership style and ability.

Students should be developing positive communication skills (both verbal and non-verbal) to be successful within this outcome. They need to demonstrate respect for themselves and others with regard to both technical skills and knowledge of the trade.

This outcome is designed to provide a space for students to give back to the other students in the Carpentry Programs at the school and develop a sense of pride in their skills and knowledge related to the trade.

To support student success as leaders in the room, Carpentry teachers should consider the following:

- Co-construct a Leadership plan with each 801E student at the beginning of the course where goals can be set and success criteria can be established
- Plan to meet with the student(s) on a regular basis (weekly, bi-weekly, etc) to discuss challenges and opportunities
- Frequent and descriptive feedback is critical in the assessment of this outcome
- Engage the students through self-reflection
- Allow for changes and modification to the Leadership plan as needed

Technical Skill Dimension					Career Engagement		Knowledge Dimension			
Naturalization / Articulation		Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				
						Analysing		1.2, 1.3, 1.4, 1.5		1.1, 1.6
B.1					Critical Thinking	Evaluating				1.7
						Creating				

Unit B: Career Development
Career Engagement

B.1	Students are expected to… **engage in self-directed carpentry-related activities within the community to further develop and apply their technical skills.**

Achievement Indicators

Students who have achieved this outcome should be able to…

B.1.1 research a variety of opportunities in the community to further develop and apply their skills (youth apprenticeship, job shadowing, volunteering, etc);

B.1.2 examine the Youth Apprenticeship program on PEI;

B.1.3 examine the structure of Apprenticeship Training on PEI to identify opportunities and barriers;

B.1.4 examine post-secondary pre-employment training opportunities related to the trade;

B.1.5 compare the relationship between Apprenticeship training and post-secondary pre-employment training;

B.1.6 research trade related certifications to enhance their skills that are available outside of school (WHMIS, Ladder Safety, Fall Arrest, etc); and

B.1.7 engage in a variety of activities inside and outside the school setting that contribute to their overall technical skill development, knowledge, and enjoyment with the trade.

Elaboration

This outcome is designed to support students growth, learning, and engagement with the trade outside of school. It is expected that students document and reflect on their work outside of school that supports their career development and future opportunities.

This may include (but not limited to)

- Registering as a Youth Apprentice and maintaining an official logbook
- Working part time in a related occupation that supports their development
- Volunteering
- Job shadowing, career fairs, trade shows, or any other industry event that connects the student with industry and potential employers
- Participating in Skills Canada Competitions
- Touring post-secondary institutions and developing learning goals
- Community and/or family opportunities to engage in the trade and develop skills
- Attending industry level training and OH&S training

Students are expected to be actively engaged in developing their skills and knowledge outside of school and will be required to demonstrate that engagement to their teacher and their peers. This can take the form of a technical portfolio, demonstration, video, self-reflection, or interview. Students will need to collect evidence of their work/engagement outside of school and use this evidence to support their attainment of this outcome.

Technical Skill Dimension					Technical Skill Development		Knowledge Dimension			
Naturalization	Articulation	Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				
						Analysing				
C.1					Critical Thinking	Evaluating			1.1, 1.2, 1.3, 1.5	1.4
						Creating				1.6

Unit C: Tools and Materials
Technical Skill Development

C.1	Students are expected to… **develop their tactile skills involving the use and selection of tools and materials to solve technical problems related to carpentry technology.**

Achievement Indicators

Students who have achieved this outcome should be able to…

C.1.1 ensure safe work practices are followed to provide for the personal safety, the safety of others, and to prevent accidents;

C.1.2 perform carpentry tasks safely and effectively using hand tools, portable and stationary power tools safely and effectively;

C.1.3 select the correct tool to perform a given task;

C.1.4 reflect on their use of tools and equipment;

C.1.5 perform routine maintenance on tools and equipment; and

C.1.6 construct carpentry related projects to challenge and enhance their trade related skills.

Elaboration

It is expected that student who enroll in the CAR801E program continue to refine and develop their tactile Carpentry Skills involving the use of tools and materials that are common to the trade.

The CAR801E students are expected to model best practices when working in the shop with a particular focus on modeling

- Safe work practices
- Work ethic and attitude
- Time on task and time management
- Shop maintenance and housekeeping
- Management of tools and materials
- Supporting the technical skill development of peers

Students are to use this time in the shop to support their personal technical skill development and also demonstrate the leadership skills (outcome A.1) expected of a student who is in their 5th (or possibly 6th) Carpentry course.

Students are expected to become aware of their personal skill development and use their time in the shop strategically to refine and develop their skills. This can include a personal project that challenges their skills and also participating as a leader on larger projects that are happening in the CTE-Carpentry program at their school.

To support student success on this outcome Carpentry teachers should consider the following:

- Co-construct a Skill Development Plan with each 801E student at the beginning of the course where goals can be set and success criteria can be established
- Plan to meet with the student(s) on a regular basis (weekly, bi-weekly, etc) to discuss challenges and opportunities
- Frequent and descriptive feedback is critical in the assessment of this outcome
- Engage the students through self-reflection
- Allow for changes and modification to the Skill Development plan as needed

Students can also consider engaging in short term job shadowing and/or placement opportunities that may allow them to develop skills or experiences in aspects of the trade that are not easily accessed in the high school setting. Teachers can support this by connecting with the Cooperative Education teacher at their school.

Technical Skill Dimension					Level 1 Carpenter Exam Challenge		Knowledge Dimension			
Naturalization / Articulation		Precision	Manipulation	Imitation			Factual	Conceptual	Procedural	Metacognitive
Innovative		Complex		Simple	Cognitive Dimension					
					Recall	Remembering				
						Understanding				
					Procedural	Applying				
						Analysing			1.2	
D.1					Critical Thinking	Evaluating		1.1	1.5	1.3, 1.6
						Creating			1.4	1.7

Unit D: Carpentry Skills
Level 1 Carpenter Exam Challenge

D.1	Students are expected to… **prepare to challenge the Level 1 Carpenter Apprenticeship Exam for PEI.**

Achievement Indicators

Students who have achieved this outcome should be able to…

D.1.1 examine the structure of Apprenticeship Training on PEI;

D.1.2 reference the National Building Code for specifications, codes, and limits;

D.1.3 examine their knowledge and skill set against the standards established for level 1 Carpenter;

D.1.4 create a study plan to address the gaps in their learning;

D.1.5 prepare for the Level 1 Carpenter exam at the end of the course;

D.1.6 interpret exam results to determine their next steps; and

D.1.7 create a personal action plan to continue their training related to the trade.

Elaboration

The specific content for this outcome is related to the Atlantic Harmonized Carpentry Curriculum as set by Apprenticeship PEI. The link to the full document can be found in the shared directory. As students prepare to enter the workforce and/or post-secondary training it is essential to ensure that they fully understand that to be a fully certified Level 1 Apprentice in any trade you need each of the following:

1. A signed Apprenticeship Contract & Official Logbook
2. 1800 hours of work experience (combination of Paid Work & time in school)
3. 70% Mark on the Level 1 Apprenticeship Exam

It is expected that all students enrolled in the CAR801E course prepare for and sit the Level 1 Carpenter Apprenticeship Exam. The Level 1 Carpenter Exam is a Multiple Choice Exam format and the questions are developed by a Red Seal Certified Skilled Tradespeople, College Instructors, and Business owners.

1. Each question will have 4 possible answers (A, B, C, or D) called Distractors
2. Each Distractor to a given question must be a plausible answer. This means that there are no trick questions
3. There can only be one correct answer to each question
4. The General term/name for tools, equipment, or materials is always used...not a brand name

The Level 1 Apprenticeship exam is administered by Apprenticeship PEI. Students will need to register to write the exam at the beginning of the CAR801E course and use the time in the program to prepare for the exam.

The Apprenticeship Standard for the Level exam is 70%. This grade will be logged on their official record at the Apprenticeship Office once a student becomes a registered Apprentice with a recognized employer. A copy of the Apprenticeship contract and Youth Apprenticeship Award application can be found on the shared directory.

The High School expectation for this exam is a mark of 50% or better. This is a rigourous exam and is developed as a standard for the industry. Students need to be aware that the result on this exam reflects their existing knowledge and experience level as a Carpenter. If they score between 50 and 70 percent they should be very proud of the accomplishment and use this experience as leverage as they prepare for their next steps in the trade (either paid work in industry or further study at a post-secondary institution).

It is expected that any student writing this exam have a working knowledge of the National Building Code and be able to navigate Section 9 of the code.

Below is the Carpenter Exam Outline as of 2017, annual updated will be available on the shared directory.

Section	# of Questions	Section	# of Questions
Safety Awareness	8	Tools and Equipment	7
Introduction to Lifting Rigging & Hoisting	4	Fasteners, Connectors, & Adhesives	5
Communication & Trade Documentation	3	Introduction to Project Drawings & Specifications	5
Hoarding	3	Temporary Access Equipment & Structures	4
Basic Site Layout	5	Wood & Wood Products	4
Non-Wood Products	4	Concrete	9
Beams & Supports	7	Floor Layout & Framing	8
Introduction to Framing Systems	6	Footings & Slab-On-Grade Forms	7
Deck Layout & Framing	4	Wall Forms	7