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# CAREER AND TECHNOLOGY STUDIES

## PROGRAM PHILOSOPHY AND RATIONALE

### VISION

To engage students in learning opportunities through which they discover their interests in practical and purposeful ways.

### INTRODUCTION

Canadian society experiences continuous social, cultural and economic change, and today's students must be confident in their ability to respond to change and successfully meet the challenges they face. Whether students enter the work force or continue their education after senior high school, they will be challenged by increased independence and responsibility as they pursue choices and opportunities in their life paths.

Current trends indicate that the majority of new jobs today and in the future will require some form of post-secondary education and that the completion of senior high school will no longer be sufficient. Alberta faces a range of emerging challenges, including the changing nature of work and career paths; the requirement of greater skills and knowledge in many occupations; the introduction of new technologies; changing patterns of education and training; the globalization of the marketplace; labour shortages; and the need for highly skilled, educated and innovative people.

The Career and Technology Studies (CTS) program has been revised and refocused in cooperation with teachers, business and industry representatives, and post-secondary educators to address the emerging trends, challenges and opportunities of today and tomorrow. The result is:

- a focused program of studies based on credible occupational areas
- opportunities for all students to explore their abilities, interests and passions and to develop knowledge, skills and attitudes through exploratory courses or a pathways model
- printed and digital resources that support learning experiences in career fields
- access to CTS programming through classroom, online, off-campus and other combined approaches to instruction.

### PHILOSOPHY

The CTS program is designed to develop skills that senior high school students can apply in their daily lives when preparing for entry into the workplace or for further learning opportunities. Through the CTS program, students are provided with opportunities to personalize their learning, identify and explore their interests, manage transitions and build partnerships while developing basic competencies, that is, the attitudes and behaviours that people need to participate and progress in today's dynamic world of work.

Today's world of work demands that individuals are able to navigate and build their own career paths while adapting to continual change. This expectation requires a shift in the language used to define "career" as well as a shift in the delivery of career development. Careers are not defined as jobs and occupations, but rather as whole packages of expressed roles, knowledge, choices, passions and experiences. Careers are created by individuals who act upon passions, interests, abilities and other internal factors and combine them with external options and circumstances. Each person's career path is unique, even though individuals may share common credentials, occupations, work roles, or jobs and experiences.

Ultimately, it is the student who will make his or her own links between school, career development and post-secondary options. Career development requires students to be active in their learning and to develop enthusiasm for lifelong learning that carries them beyond learning in school.

Career development also requires acknowledgement that today's world is a technological world. Technology affects the environment, one's standard of living and one's quality of life. People use technology in the workplace, at home, at school and in sporting and leisure activities. Technology is used to extend possibilities, allowing individuals to intervene in the world through the development of products, systems and environments. Technology is continually changing. It is influenced by and, in turn, influences the cultural, ethical, environmental, political and economic factors of the day, both local and global.

Students in CTS can develop competence and confidence in understanding and using existing technologies and in creating solutions to technological problems. Taking CTS courses contributes to the intellectual and practical development of students, as individuals and as informed members of a technological society.

The CTS program strives to address career development in a way that emphasizes personalized learning, relevance, transitions and partnerships. It does so by:

- providing opportunities for all students to explore their abilities, interests and passions and to develop knowledge, skills and attitudes so they can be fulfilled, productive citizens
- providing opportunities for all students to develop the foundations to manage transitions within their learning environment and when moving into further education, training and/or the workplace
- influencing the growth of a career development culture in schools and communities
- facilitating the integration and coordination of career development across Kindergarten to Grade 12, advanced education, workplaces and the community.

*Students' interests might lie in working with their hands, working with other people, working in an environment of constantly changing ideas, or working in a career that follows carefully established patterns. All of these areas include a variety of occupations that require more or less education.<sup>1</sup>*

## **RATIONALE**

CTS courses enable students to make reasoned and effective career decisions and target efforts to meet their goals. Students will have opportunities to expand their knowledge about careers, occupations and job opportunities, as well as the education and/or training requirements involved. Competencies achieved by mastering CTS course outcomes will allow students to make relevant connections with work and/or post-secondary training.

CTS also enables students to develop the confidence they need as they move into adult roles by allowing them to assume increased responsibility for their learning; cultivate their individual talents, interests and abilities; and define and act on their goals. The CTS pathways model includes the following benefits for students, educators and employers.

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1. "From the Mouths of Middle-Schoolers: Important Changes for High School and College." *Phi Delta Kappan*, Vol. 89, No. 03 (November 2007): 189–193. William J. Bushaw. Reprinted with permission of PDK International.

## **Benefits for Students**

Through the pathways model, students experience:

- relevant and engaged learning
- freedom in exploring multiple pathways
- personally meaningful pathways leading to specialized skills
- engagement in their interests or passions
- opportunities to achieve post-secondary credentials while still in senior high school
- easier transitions from senior high school to post-secondary education or the work force.

## **Benefits for Educators**

Through the pathways model, educators experience:

- more focused organization of CTS courses
- a focused and engaged learner
- greater opportunity for community support.

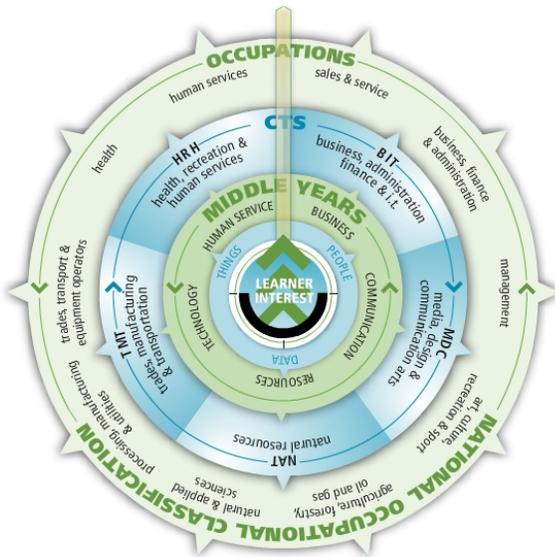
## **Benefits for Employers**

Through the pathways model, employers experience:

- employees with specialized skills or post-secondary or industry credentials
- motivated and engaged employees.

# PROGRAM ORGANIZATION

## OVERVIEW



The CTS Compass above can assist students as they explore and discover their interests and passions.

As students move into the Middle Years, they begin to identify with one or more interest areas: business, communication, resources, technology and/or human service. As students enter senior high school and the CTS program, they begin to identify the occupational cluster or clusters that suit their interests and abilities. As students become more focused, they examine options for occupations based on the National Occupational Classification. With a career goal in mind, students can develop a pathway that leads them directly to an occupation or to post-secondary education.

The organization of the CTS program into clusters provides students, teachers and administrators with opportunities to create exploratory programs, in which students can sample courses of interest, or to use or create focused pathways that lead to specialized skills, external credentials or further education. Career guidance professionals may use this organizational structure to assist students in assessing their educational goals, interests, abilities and skills and to facilitate good matches to the many pathway options possible in the CTS clusters.

## CTS COURSES

CTS courses are competency-based instructional units defined by learning outcomes that identify what a student is expected to know and be able to do. Courses include outcomes with practical applications, and each course represents approximately 25 hours of access to instruction. CTS courses are weighted at 1 credit each and are divided into three levels of achievement: introductory, intermediate and advanced. Some courses require one or more prerequisites, which are essential for maintaining safety standards, appropriate instructional sequence and articulation with post-secondary programs. CTS courses can be selected by students in an exploratory fashion, or they can be taken as part of an intentional pathway.

For each course, the program of studies lists a general description, the general and specific outcomes, prerequisites and course parameters (e.g., recommendations regarding instructional qualifications, facilities and equipment). The general outcomes are presented in boldface, and the specific outcomes follow immediately in lightface.

### Levels of Achievement

Courses are organized into three levels of achievement: **introductory**, **intermediate** and **advanced**. Levels of achievement are not indicators of grade levels. As students progress through the levels, they will be expected to meet higher standards and to demonstrate an increased degree of competence in both the general and specific outcomes.

**Introductory** level courses help students build daily living skills and form the basis for further learning. Introductory courses prepare students for further experiences in the cluster, pathway or occupational area.

**Intermediate** level courses build on the competencies developed at the introductory level. They provide a broader perspective, helping students recognize the wide range of related career opportunities available within the cluster.

**Advanced** level courses refine expertise and help prepare students for entry into the workplace or a related post-secondary program defined within the cluster.

## CTS CLUSTERS

A cluster is a group of CTS courses that represents occupations and broad industry commonalities. Clusters in CTS are aligned with the National Occupational Classification (NOC) and function as an organizing tool for the CTS program. (For more information on the NOC, visit the Human Resources and Skills Development Canada Web site at <http://www5.hrsdc.gc.ca/NOC-CNP/app/AboutNOC.aspx?lc=E>.)

The CTS program includes five clusters: Business, Administration, Finance & Information Technology (BIT); Health, Recreation & Human Services (HRH); Media, Design & Communication Arts (MDC); Natural Resources (NAT); and Trades, Manufacturing & Transportation (TMT).

Clusters connect learning outcomes specific to the knowledge, skills and attitudes required for related occupational areas. Clusters:

- help students choose curriculum and occupational fields for which they have interest and aptitude
- provide a context for selecting courses specific to a pathway
- help connect students with exploratory courses of study, allowing students to gain general, transferable skills
- help students develop specialized skills and knowledge through pathways
- focus teaching and learning by relating similar knowledge, linking shared skills, guiding career exploration, allowing students to make informed career choices, associating common interests and linking education with relevant real-world experiential activities.

## The Five Clusters

### **Business, Administration, Finance & Information Technology (BIT)**

The focus of the BIT cluster is for students to develop and apply important knowledge, skills and attitudes so they can implement efficient systems and strategies of management and marketing and use electronic technologies to collect, structure, manipulate, retrieve and communicate information within individual, family, workplace, community and global contexts.

### **Health, Recreation & Human Services (HRH)**

The focus of the HRH cluster is for students to develop and apply important knowledge, skills and attitudes so they can provide care and services for individuals and groups in a variety of industries, such as health care, recreation, cosmetology, the food industry and the legal system.

### **Media, Design & Communication Arts (MDC)**

The focus of the MDC cluster is for students to develop and apply important knowledge, skills and attitudes so they can provide well designed and aesthetically effective communication solutions.

### **Natural Resources (NAT)**

The focus of the NAT cluster is for students to develop and apply the knowledge, skills and attitudes to work individually and collectively, as private citizens and as members of the work force, toward the conservation and responsible use of energy and natural resources.

### **Trades, Manufacturing & Transportation (TMT)**

The focus of the TMT cluster is for students to develop and apply important knowledge, skills and attitudes relative to the manufacture and assembly of products from individual components and the processing of raw materials into products.

## CTS PATHWAYS

Many schools in North America and around the world are now providing students with opportunities to explore their career path through a variety of courses that are organized around common occupational areas. These pathways allow students to follow their natural skills, aptitudes and interests in an organized and progressive way as they work toward goals that may include university, college, apprenticeship training or moving directly into the work force.

Pathways are flexible and they permit students to:

- explore an occupation or an interest area
- gain an occupational or a specialized skill set required in the workplace
- apply relevant learning from academic courses to real-life situations
- focus their senior high school course plans into a career path.

The pathways model of CTS facilitates making connections between CTS courses and other subjects. Within each CTS cluster, the potential for several pathways exists. These pathways will address the specific skills and knowledge necessary to pursue a full range of career opportunities, including technical and professional career specialties. All pathways, with the exception of credentialed pathways (see the text in the right-hand column), can be built and modified by students or teachers.

Pathways should be designed to prepare students to transition successfully from senior high school to post-secondary education or to employment in an occupational area. Links to post-secondary educational institutions, employers, industry groups and other stakeholders can be included within a pathway.

There are two possible kinds of pathways in the CTS program:

1. **Specialized skill pathways** provide students with the knowledge, skills and attitudes for employment or further education. These pathways can be customized to meet student, school or community program needs. Courses within such a pathway will prepare students for specific community or job-site skills.
2. **Credentialed pathways** provide students with post-secondary and/or business and industry credentials or articulation. For students to obtain the desired credential or articulation, all specified course outcomes within the pathway must be met.

### SAMPLE PATHWAY (BIT): BUSINESS BASICS



**Note:** A variety of sample pathways are provided in the *Guide to Career and Technology Studies*.

## **MEETING THE DIVERSE NEEDS OF ALBERTA'S STUDENTS**

Alberta schools include students from a rich variety of backgrounds. These students have a wide range of abilities and needs. Like all school programs, the CTS program has been developed with this diversity in mind. Teachers and instructors should be aware of the individual needs of their students and adapt their instruction and programming accordingly.

### **First Nations, Métis and Inuit (FNMI) Students**

FNMI students in northern and western Canada come from diverse geographic areas with varied cultural and linguistic backgrounds. Teachers and instructors need to understand the diversity of these students' cultures and experiences. They also need to understand that there are values and cultural traditions shared amongst many Aboriginal Canadians, including the importance of family and the role of Elders in guiding and supporting young people.

FNMI students often have a holistic view of learning—they look for connections through experiential learning. Such connections can be made within the real-world, experiential CTS program. Traditionally, in FNMI cultures, little emphasis was placed upon the written word. Still today, oral communication and practical applications and experiences are important to student learning and understanding. A variety of teaching and assessment strategies can help build upon the diverse knowledge, cultures, communication styles, skills, attitudes, experiences and learning styles of FNMI students.

### **English as a Second Language or French as a Second Language Students**

Immigrants to Alberta come from many different cultural and linguistic backgrounds. Many of these new arrivals become students in Alberta schools, yet their knowledge of English or French may be minimal. Some students who have lived in Canada their entire lives may also be learning to speak English or French as a second (or third) language. The variety of teaching and assessment strategies that can be used in the CTS program may help

build upon the diverse knowledge, cultures, communication styles, skills, attitudes, experiences and learning styles of these students.

### **Students Who Have an Individualized Program Plan (IPP)**

Students who have been identified as having special education needs will have an Individualized Program Plan (IPP), which should be used to guide teachers' planning and instruction. The needs of these students vary greatly from one individual to the next and may range from physical adaptations to the environment or equipment, to arranging for special testing accommodations.