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DOCUMENT 9.0 CTS/CTF Programming for Electives
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OVERVIEW
The electives program provides FLCA learners with a guided opportunity to explore their personal interests, inquiries, and future directions. Project plans must integrate Alberta Education's general learner outcomes, culminating in a final product that celebrates the student's exploratory learning.

As students transition into secondary programming, CTS modules introduce highly specific learner outcomes and greater content depth. These modules remain firmly rooted in Careers, Technology, and Science, offering high school students practical, hands-on ways to explore the future world of work.

ALBERTA EDUCATION CURRICULUM UPDATES: CAREER PROGRESSIONS
Note: The following reflects the latest Division 3 (ages 12–14) Career Progressions updates sourced from the newly updated Alberta Education curriculum.

Career education is designed to equip students with the relevant, timely learning opportunities required to transition smoothly into post-secondary pathways and the workforce. The updated curriculum emphasizes four core pillars:

- Personal Career Exploration: Students develop career aspirations, explore various options by researching and connecting with professionals, and recognize how personal beliefs, biases, and societal pressures influence career decisions.
- Career Pathway Planning: Students identify necessary knowledge and skills, explore standard and non-standard employment options, and examine the changing world of work (including technological advancements and labor market trends).

- Career Experiences: Students participate in work-related experiences (e.g., volunteering, job shadowing) to learn about workplace ethics, safety, and operational practices, while developing work attainment strategies such as writing resumes and cover letters.
- Entrepreneurialism: Learners foster creativity by questioning conventional ideas, taking the initiative to solve problems, developing a confident mindset, and exploring actionable strategies to pursue entrepreneurial opportunities.

ALBERTA EDUCATION DIRECTION ON CTF & CTS MODULES

CTF Modules (Middle School)

- An occupational area is defined as a grouping of courses focusing on the attitudes, skills, and knowledge related to specific work sectors.
- Within the Career and Technology Foundations (CTF) framework, occupational areas are grouped into five distinct clusters representing broad industry categories: Business, Communication, Human Services, Resources, and Technology.
- These CTF cluster names are simplified versions of the CTS occupational clusters and align with both the CTS Compass and the National Occupational Classification (NOC).

CTS Modules (High School)

- Career and Technology Studies (CTS) allows high school students to deeply explore personal interests and career options while developing practical skills applicable to daily life and post-secondary employability.
- As a provincially authorized secondary curriculum, CTS utilizes a pathways model featuring flexible 1-credit courses.
- This specific course structure empowers schools to design customized, unique programs that meet student needs and leverage community resources.

FLCA GOOGLE CLASSROOM CATEGORIES FOR TEACHER DEVELOPED ELECTIVES

- Human Services/Athletics: Recreation Leadership, Community Care Services, Human & Social Services, Health Care Services, Legal Studies, Cosmetology, Esthetics, Foods, Tourism.
- Technology/STEM: Electro-Technologies, Construction, Fabrication, Mechanics, Logistics.
- Business/Leadership: Management & Marketing, Enterprise & Innovation, Financial Management, Information Processing, Computing Science, Networking.
- Communication/Fine Arts: Design Studies, Fashion Studies, Communication Technology.

GENERAL LEARNER OUTCOMES & THE LEARNING PROCESS

1. Exploring interests, passions, and skills while connecting to career possibilities:
   - I explore my interests and passions while linking them to potential careers.
   - I apply occupational area skills, knowledge, and technologies.
   - I adhere to the safety requirements associated with specific occupational areas and technologies.
   - I demonstrate environmental stewardship within occupational contexts.

2. Planning, creating, appraising, and communicating in response to challenges:

- I formulate plans and make decisions to address challenges.
- I adapt to unexpected events and changes.
- I solve problems encountered during challenges.
- I create products, performances, or services as solutions to challenges.
- I appraise the skills, knowledge, and technologies utilized.
- I communicate my learning effectively.

3. Working independently and collaboratively while exploring careers:

- I determine how my own actions impact my learning.
- I develop skills necessary to support effective professional and personal relationships.
- I collaborate with others to achieve common goals.

The Non-Linear Learning Process

Students engage in tasks or challenges by moving dynamically through the following phases:

- Plan: Identifying problems, generating ideas, and encouraging empathy and evaluation when designing solutions.
- Create: Producing a product, performance, or service utilizing one's imagination and thought.
- Appraise: Using continuous assessment to guide learning and decision-making.
- Communicate: Sharing and receiving information to express ideas and build understanding.

PROGRAM IMPLEMENTATION & SCHEDULING

Elective Choices

- One elective will be selected for each of the three terms, driven by student preferences and teacher expertise.
- The current elective selections will be published and shared with families each spring, winter, and fall to provide updates on trimester registrations. (See Appendix below.)

Implementation Models

- Model 1: Students take traditional core classes and create a CTF project that integrates both core and complementary course outcomes.
- Models 2 & 3 (Inter-disciplinary): The school features CTF cluster-based courses where students complete projects. Students take courses, create projects, and receive targeted opportunities to work within each distinct CTF cluster.

Generalized CTF Lesson Sequence (Middle School)

Note: This sequence spans 10 weeks, although up to 12 weeks may be available depending on the FLCA Calendar.

- Week 1: Teacher presentation of general outcomes, ideal sequence, and class discussion of the course topic's connection to the career world. Handout for Project A.
- Week 4: Teacher outline and handout for Project B (includes Rubric).
- Week 7: Teacher outline and handout for Project C (includes Rubric).
- Week 9: Self or group presentation of one finalized project.
- Week 10: Self, group, and teacher evaluation of all projects.

Student Evaluation Breakdown

- Project A: 30%
- Project B: 30%
- Project C: 40%

APPENDIX: SAMPLE COURSE OUTLINE

Fidgets in 3D Design Elective (CTF Middle School)

- Occupational Clusters: Technology/STEM (Design Studies, Fabrication) & Business/Leadership (Enterprise & Innovation, Management & Marketing)
- Course Description: This elective introduces middle school students to the fundamentals of 3D Computer-Aided Design (CAD), mechanical tolerances, rapid prototyping (3D printing), and product design. Students explore how tactile and sensory tools are engineered and marketed, developing practical design skills to turn digital concepts into physical, functional fidget products.

Learning Outcomes Focus

- 3D Modeling & Spatial Reasoning: Applying geometric principles, dimensions, and tolerances in CAD software (Design Studies / Fabrication).
- Rapid Prototyping & Ergonomics: Designing user-centered, functional objects considering material properties, slicing software, and print mechanics (Technology / STEM).

- Entrepreneurial Product Development: Calculating production costs, conducting user testing, and pitching market-ready sensory tools (Enterprise & Innovation).

Course Timeline & Project Breakdown

Weeks 1–3 | Project A: Fundamentals of 3D CAD & Basic Mechanics (30%)

- Focus: Navigating a 3D modeling workspace (e.g., Tinkercad or Onshape), understanding scale, measuring accurately with calipers, and designing for basic assembly (e.g., press-fit tolerances for bearings or pins).
- Task: Students design a customized, single-part or simple two-part fidget tool (e.g., a branded fidget spinner body or a textured thumb roller) adhering to precise millimeter measurements.

- Career Connection: Industrial Design, Mechanical Engineering, Drafting, and Product CAD Technology.

Weeks 4–6 | Project B: Print-in-Place Mechanisms & Cost Analysis (30%)

- Focus: Advanced 3D modeling concepts (print-in-place hinges, interlocking gears, print supports, slicing settings) and material economics.
- Task: Students design an advanced multi-part or print-in-place fidget (e.g., a gear fidget ring, articulated flexi-chain, or fidget cube module).
- Entrepreneurial Link: Students analyze the digital slicing model to calculate production metrics (filament weight, print duration, energy costs) and establish a retail price point and value proposition for their fidget tool.

Weeks 7–10 | Project C: The FLCA Sensory Innovation Challenge (40%)

- Focus: Full design cycle—identifying a user need, prototyping, testing, iterating based on feedback, and final product launch.
- Task: Working independently or in small teams, students create a unique, branded line of sensory/focus tools targeted toward a specific audience (e.g., tools for classroom concentration, stress relief, or fine-motor therapy). They test 3D-printed prototypes, refine their digital CAD files based on peer appraisals, build packaging/branding visuals, and present their final working product.
- Assessment: Evaluated on structural integrity/tolerances, functional usability, creative design iteration, and the final project presentation (Week 9).

APPENDIX: MENU OF FLCA ELECTIVES FOR MIDDLE SCHOOL

The FLCA Electives program for Middle School (Grades 7–9) is grounded in Alberta Education's CTF framework and is heavily driven by project-based learning. A foundational touchstone of every course is its direct connection to career exploration and the active cultivation of an entrepreneurial mindset.

Cultivating Entrepreneurial Thinking

Rather than relying strictly on traditional assessments, FLCA electives challenge students to view industries through the lens of a founder, freelancer, or innovator.

Elective Course	Career Pathway	Entrepreneurial Connection

Volunteens	Non-Profit Sector	Running a non-profit startup and organizing impactful community projects.
Fit 4 Life	Health & Wellness	Building a lifestyle brand and understanding the business of the wellness economy.
Tech Musicians	Audio Engineering	Producing, distributing, and independently marketing unique audio brands.
Designing Spaces	Architecture	Developing spatial plans for aspiring real estate, retail, or design entrepreneurs.
VR Trades - INTERPLAY	Skilled Trades	Exploring the logistics of becoming an independent contractor and running a local business.
Digital Ad Wizards	Media Marketing	Pitching and creating captivating digital campaigns for local businesses.

Skill-Building for Future Innovators

Across various disciplines, students learn to identify real-world problems and prototype viable solutions, mimicking the cycles of modern startups.

- Prototyping & Manufacturing: Courses like *3D Rocket Launch* teach the exact prototyping processes that real-world tech companies use to launch products.
- Sustainable Economics: *Fibre Recycling Works* immerses students in the circular economy, teaching eco-entrepreneurship through upcycled textiles.
- Cultural Intelligence: *Cultural Explorations* develops the global thinking required by international NGOs and worldwide startups to succeed in new markets.
- Market Analysis: *Forensics* teaches logical deduction skills that mirror how top entrepreneurs identify market gaps and uncover innovative solutions.

- Strategic Logistics: *Sports Mania* goes beyond gameplay, diving into the business, marketing, and logistics of tournament design.
- Green Business: *Botany Basics* explores the biology behind the "green economy" and the requirements for cultivating a successful agricultural venture.