



**APPRENTICESHIP AND CAREERS
IN THE SKILLED TRADES**

**A GUIDE FOR
EDUCATORS**

CANADIAN
APPRENTICESHIP
FORUM



FORUM
CANADIEN SUR
L'APPRENTISSAGE


SkillsCompétences
Canada



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Sponsors

About Skills Canada

Skills Canada encourages and supports a coordinated pan-Canadian approach to promoting skilled careers in trades and technologies to youth and their communities.

About CAF-FCA

CAF-FCA is an inclusive organization working with the apprenticeship community in all regions of Canada. It promotes apprenticeship as a valuable form of post-secondary education that leads to rewarding careers in high-demand occupations. CAF-FCA has representatives from business, labour, educators, equity-seeking groups and the jurisdictions.

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Website: www.caf-fca.org
Copyright November 2021
ISBN: 978-1-7772167-7-1

1.

INTRODUCTION

This guide for educators will help you discuss with your students why apprenticeship is an excellent post-secondary option. It contains information about the following topics:

Overview of Educator Resources

What are the Skilled Trades?

What is Apprenticeship?

Key Terms

Roles and Responsibilities in Apprenticeship

Pathways into Apprenticeship

Career Aspirations

Career Advancement Opportunities

The Apprenticeship Advantage

Attributes for Success in Apprenticeship

Skills for Success

Journeyman Income

Opportunity: Skills Shortages and Trades in Demand

Financial Supports

Educators helped us to create classroom activities that demonstrate links between scientific and mathematical concepts and the skilled trades. You can find these activities at the end of this guide.

2.

OVERVIEW OF EDUCATOR RESOURCES

There are additional resources that will help you promote skilled trades careers.

Each provincial and territorial apprenticeship department or authority has developed promotional resources for educators. Any specific questions about individual apprenticeship systems in your location should be directed to the provincial or territorial officials who regulate and administer apprenticeship systems or the post-secondary institutions in your region that provide skilled trades training.

Figure 1: Overview of Educator Resources

CAF-FCA EDUCATOR RESOURCES

[Educator's Guide
in partnership with
Skills Canada](#)

[Careers in Trades Website in partnership with Skills Canada](#)

The *Careers in Trades Website* provides information about the skilled trades by sector, finding an employer, becoming registered as an apprentice, youth apprenticeship programs, pre-apprenticeship programs and financial supports.

[The Skilled Trades Network](#)

The *Skilled Trades Network* provides links to resources. Teachers and students can access information about pre-apprenticeship programs, local networking groups, Essential Skills/Skills for Success programs and various financial supports. The network is searchable by province/territory.

[Trades Explorer Tool](#)

The *Trades Explorer Tool* helps students think about the specific trade that might be a good fit for them based upon their skills, their hobbies and their interests.

[Videos/Podcasts](#)

Videos and podcasts feature apprentices and journeypersons sharing the benefits of apprenticeship training and careers in the skilled trades.

3.

WHAT ARE THE SKILLED TRADES?

The skilled trades are occupations in the construction, transportation, manufacturing and service sectors. There are 300 trades to choose from! The largest apprenticeship programs are in these trades:

- + Automotive Service Technician
- + Carpenter
- + Construction Electrician
- + Cook
- + Hairstylist
- + Heavy Duty Equipment Technician
- + Industrial Mechanic (Millwright)
- + Plumber
- + Steamfitter/Pipefitter
- + Welder.¹

To learn more about a specific trade, check out the Skill Profiles by sector on the Skills Competences Canada website:

[Construction >](#)

[Manufacturing & Engineering >](#)

[Transportation >](#)

[Services >](#)

[Information Technology >](#)

To learn more about the trades that suit different skills and interests, check out the Trades Explorer tool at careersintrades.ca:

[Discover and Explore the Trades >](#)

¹ CAF-FCA, *Apprentice Demand in the Top Ten Red Seal Trades: A 2019 National Labour Market Information Report*, (Ottawa: CAF-FCA, 2019).



4.

WHAT IS APPRENTICESHIP?

Apprenticeship is a work-based post-secondary training option. Individuals must find an employer to sponsor them. Most of the training, approximately 80% of it, is done on-the-job. At the workplace, experienced journeyperson mentors pass down their knowledge to the apprentices. Some jurisdictions require the journeyperson or employer to check off the skills achieved by an apprentice in a logbook or the blue book as it is known in Alberta. The remaining 20% of the training is completed at a college, through a private trainer or at a union training centre. Trainers teach apprentices theoretical concepts and offer

additional practical training. This is typically a two-to four- year training period, during which individuals alternate between practical work experiences and more formal technical training. After an apprentice has completed the necessary hours and levels, they write a multiple-choice examination. Individuals who achieve 70% or higher will earn their Certificate of Qualification.² Once they are certified, journeypersons are skilled trades professionals and a promising career is launched!



Figure 2: Apprenticeship - The Foundation to a Career in the Skilled Trades



² CAF-FCA, "Alternate Technical Training Delivery in Canada: An Overview," Flexibility and Innovation in Apprenticeship Technical Training, *Canadian Apprenticeship Journal*, (Ottawa: CAF-FCA, 2017).

5.

KEY TERMS

Below are key terms commonly used in apprenticeship:

| Apprentices

Registered apprentices are people who are participating in a supervised work training program in a designated trade within their provincial or territorial jurisdiction. An apprentice must be registered with the appropriate governing body in order to complete their training.³

| Certificate of Qualification

After an apprentice has earned their hours and completed their technical training, they must write a multiple-choice exam. If the apprentice receives a mark of 70% or higher, they earn a Certificate of Qualification. This certificate is issued by the province or territory. Additionally, in what is known as a Red Seal trade (see below), a special Red Seal endorsement may be affixed to the certificate.⁴

| Employer Sponsors

Employer sponsors hire, register and train apprentices on-the-job. Each sponsor must register their apprentices and adhere to the provincial/territorial requirements.

| Hours

In order to complete an apprenticeship, each trade has identified a set number of hours that apprentices are required to work during the on-the-job phase of their apprenticeship. This number of required hours differs according to each trade.

| Journeyperson

This is the name given to an individual who has passed the certification examination in their trade either by completing an apprenticeship program or by becoming a trade qualifier (defined below).⁵

| Journeyperson Mentor

A mentor is someone who teaches the apprentice on-the-job and shares their extensive knowledge and expertise with the apprentice. The journeyperson mentor may be the person asked to check off the skills the apprentice has accomplished in the logbook or blue book.

| Logbook or Blue Book

Some provinces and territories require a detailed logbook to be completed over the course of apprenticeship training. When the apprentice has attained a particular skill, the journeyperson or employer checks off that skill in the logbook. At the end of the training, the logbook is submitted to the province or territory for review. This document is commonly referred to as the logbook or, in Alberta, the blue book.

| Red Seal

The Red Seal, when affixed to a provincial or territorial trade certificate, indicates that a tradesperson has demonstrated the knowledge required for the national standard in that trade.⁶

| Trade Qualifiers or Trade Challengers

Trade qualifiers or trade challengers are people who have already worked in a specific trade for an extended period of time but without necessarily having ever been a formal apprentice. They may receive approval from the province or territory to write the multiple-choice examination in order to become certified in their trade.⁷

| Skills for Success (formerly known as Essential Skills)

These are the skills needed to participate and thrive in learning, work and life. They include adaptability, collaboration, communication, creativity and innovation, digital literacy, numeracy, problem solving, reading and writing.⁸

3 See: https://www.statcan.gc.ca/eng/statistical-programs/document/3154_D2_V7.

4 See: [Red Seal Program / Red Seal \(red-seal.ca\)](#)

5 Ibid.

6 For examples of Red Seal trades see: [Red Seal Trades / Red Seal \(red-seal.ca\)](#)

7 See key terms section in Emily Jovic and Krystin Frank, *National Apprenticeship Survey: Canada Overview Report, 2015*. (Ottawa: Ministry of Industry, 2017).

8 See: [Learn about the Skills - Canada.ca](#). Videos describing the skills are available: <https://www.canada.ca/en/services/jobs/training/initiatives/skills-success/video.html>.

6.

ROLES AND RESPONSIBILITIES IN APPRENTICESHIP

A successful apprenticeship relies on the full support and participation of the apprentice, the employer, the journeyman mentor, the technical training institute and the government apprenticeship authority. Here are the main responsibilities of each group:

EMPLOYERS

1. Provide the apprentice with on-the-job training supervised by a certified journeyman.
2. Maintain a work environment that is conducive to learning and offers the apprentice a safe place to work with proper equipment and shop facilities.
3. Pay the apprentice's wages (usually set at a rising percentage of the journeyman wages).
4. Arrange for the apprentice to have time to pursue technical training.
5. Keep accurate records of the on-the-job training hours and the type of work accomplished. In some provinces/ territories, employers may also be responsible for providing a letter that verifies the apprentice has completed all the necessary requirements including a completed logbook or blue book.
6. Notify the local apprenticeship office if there are changes to facilities, equipment or staffing which could affect the ability to provide on-the-job training or supervision, the company relocates or changes its mailing address or if the apprentice leaves.

APPRENTICES

1. Find an employer or a group sponsor.
2. Actively participate in and successfully complete the required on-the-job and technical training.
3. Keep track of their progress, including the required hours and skills sets needed to complete their apprenticeship. In some provinces/territories, apprentices may be given a logbook or blue book that the employer or journeyman updates.
4. Apprentices must listen carefully, work safely and follow all safety protocols.

JOURNEYPERSON MENTORS

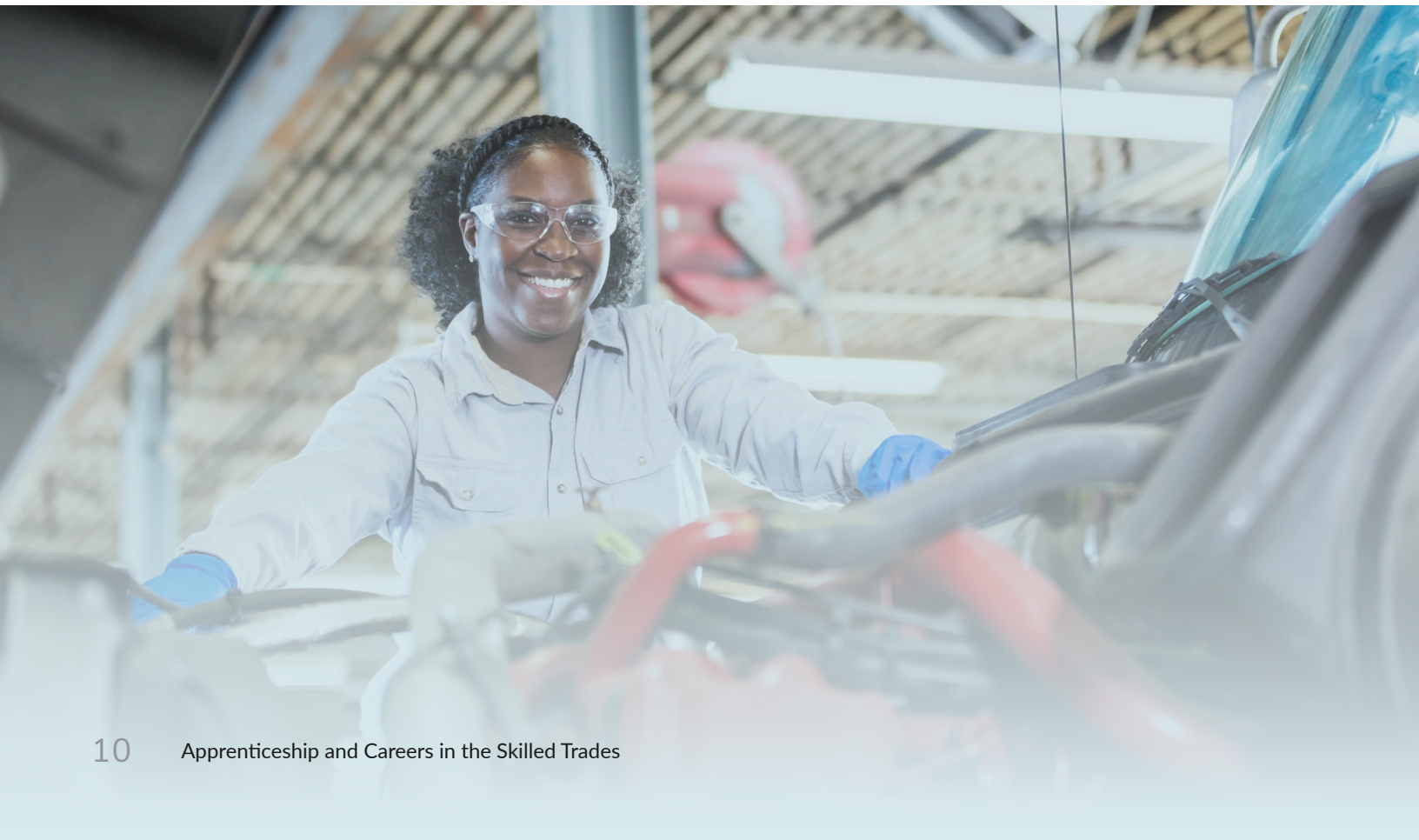
1. Monitor the apprentice's on-the-job training.
2. Demonstrate and explain how to complete the tasks of the trade according to the provincial/territorial government guidelines. Journeymen communicate with the apprentices regarding their progress and provide feedback to update the employer.
3. Include the apprentice in a wide range of work tasks so that the full scope of the particular trade is covered during the on-the-job training phase.
4. Keep accurate records of the on-the-job training tasks completed and sign off in the apprentice's logbook or blue book, if required.

TECHNICAL TRAINING INSTITUTES

1. Develop and deliver curriculum based on standards established by the provincial/territorial apprenticeship department or authority.
2. Explain why tasks may be completed in a certain way, whether for safety or efficiency reasons.
3. Develop and support the apprentice's theoretical knowledge of the trade by assigning and grading projects.
4. Administer tests and exams to evaluate the apprentice's progress and to provide help and appropriate support when needed.
5. Assess any skills gaps and direct apprentices to additional supports that are available to them.

APPRENTICESHIP DEPARTMENTS OR AUTHORITIES

1. Work with industry to develop and maintain occupational definitions, training and certification standards.
2. Designate training institutions that are authorized to deliver the technical training portion of apprenticeship.
3. Set tuition fees and pay for any technical training costs that are not covered by these fees.
4. Keep employers and apprentices informed about the system.
5. Issue certificates, monitor and verify logbooks or blue books for apprentices and qualified journeypersons.
6. Develop and manage examinations for each level of the program.
7. Assist in the scheduling of technical training. This is the model in most provinces and territories.



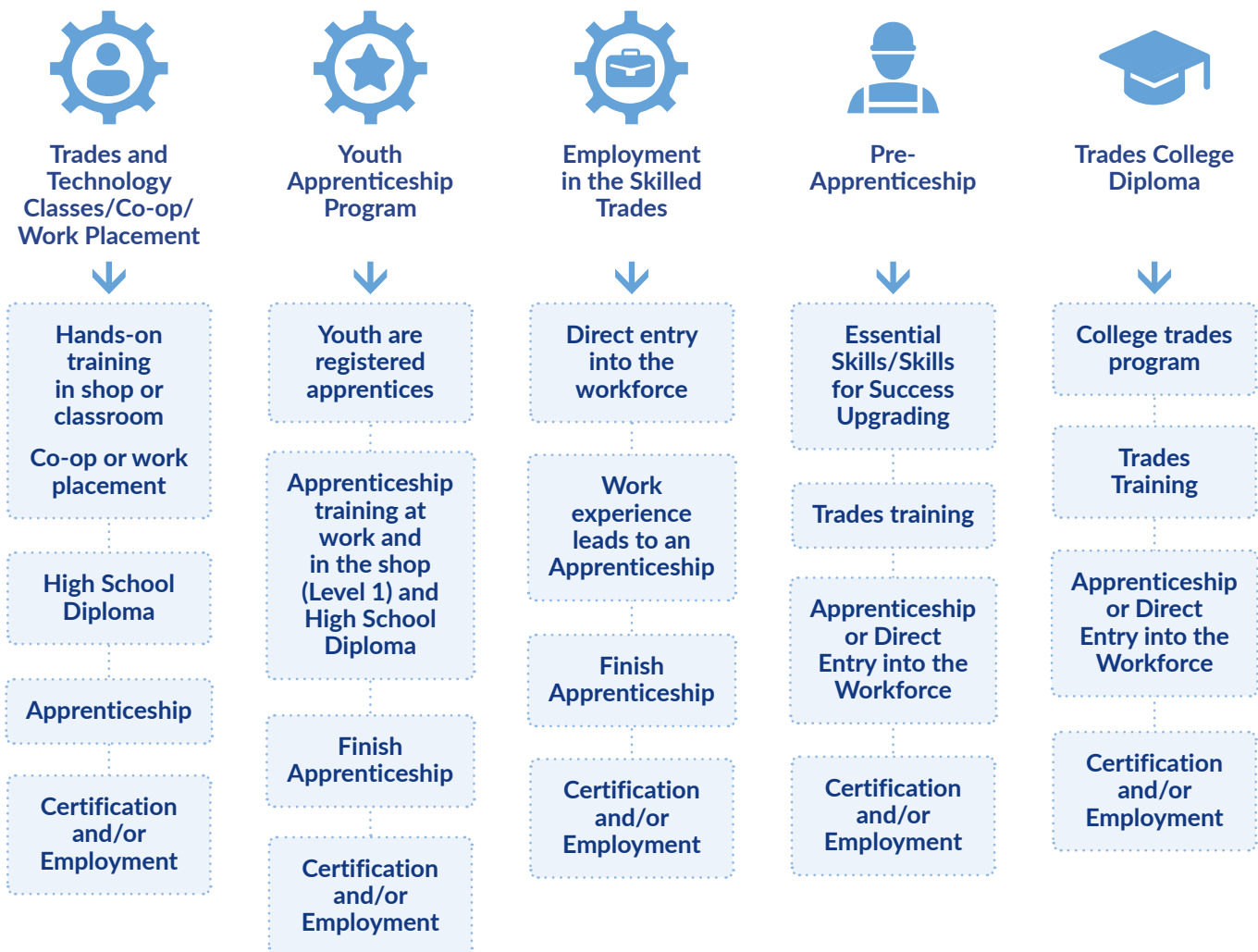
7.

PATHWAYS INTO APPRENTICESHIP

There are many entry points into apprenticeship. Examples include enrolling in Youth Apprenticeship Programs or co-op programs at high school, pursuing a college trades diploma or a pre-apprenticeship program or direct entry into the skilled trades workforce. These various pathways may lead to

a formal apprenticeship and result in certification and/or employment in the skilled trades workforce. Connect with your provincial/territorial department or authority or local post-secondary institution to find out about the specific pathways into apprenticeship in your jurisdiction.

Figure 3: Examples of Pathways into Apprenticeship



MY CAREER JOURNEY

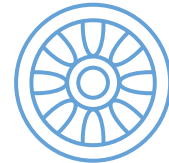
Three Examples of Pathways into Apprenticeship

Pre-Apprenticeship



John Boychuck worked several jobs, but nothing truly inspired him until he participated in a pre-apprenticeship program. While in the program, John received both training and tools. The program motivated him to learn new skills. Through his participation in the program, John eventually became a member of the millwright union.

College



Wolfe Tarjan loved working on cars and was fascinated with the ingenuity behind them and finding ways to modify them. After high school, Wolfe attended college for the automotive service technician program. Wolfe found his first employer sponsor for his apprenticeship by going to local auto shops with his résumé. He loves the work, especially when he gets to work on classic cars and high-performance engines.

Second Career



Malorie Untereiner was tired of her customer service job and was looking for a career change. She knew she didn't want to work in an office setting. She now recommends obtaining a trade certification because she says, "You will have a ticket your entire life." Malorie likes her new trade because it challenges her everyday. "And you get out of it what you put in!" Malorie has advice for young people: "Go for it! You will face setbacks, but never let it get you down and don't give up."

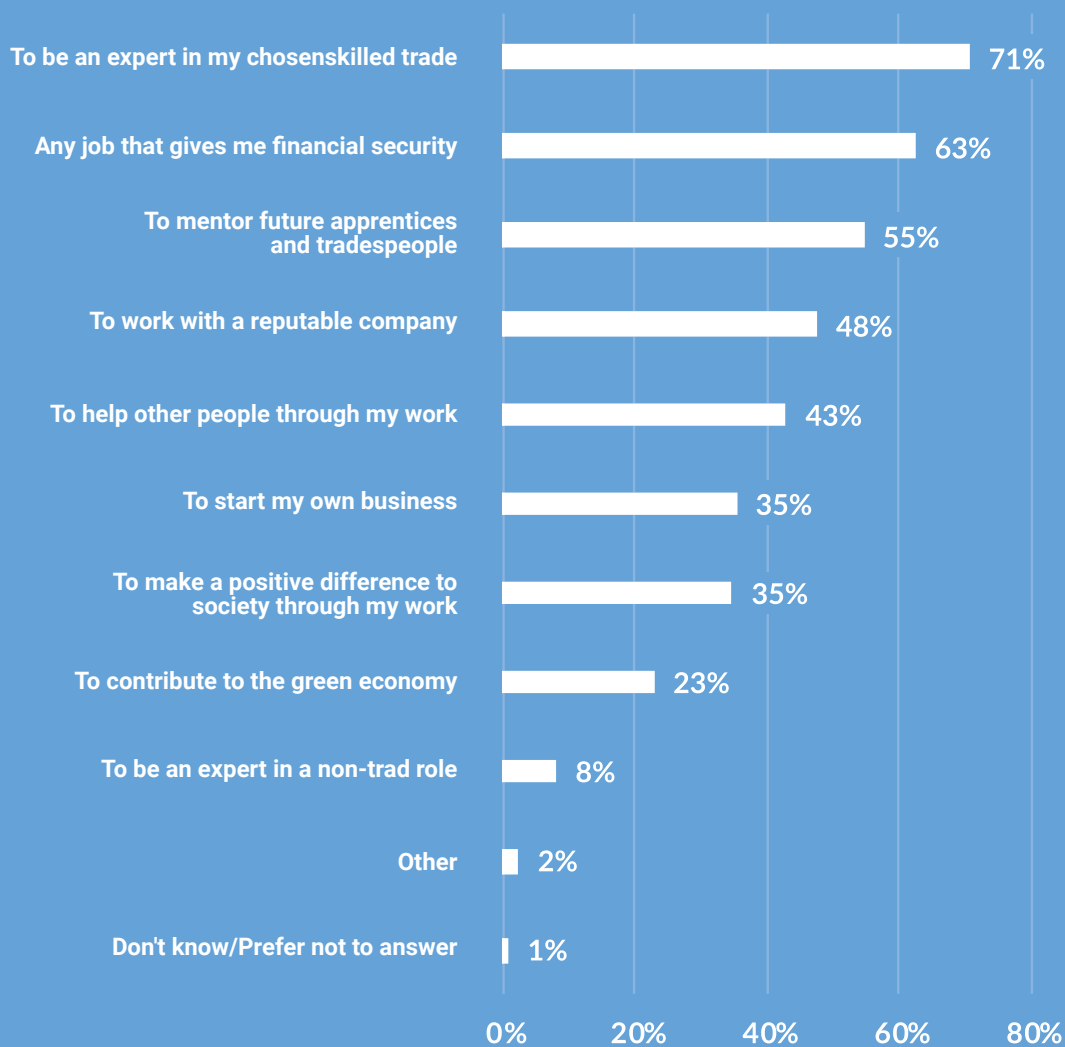
8.

CAREER ASPIRATIONS

Apprentices aspire to be professional skilled journeypersons and mentors to the next generation. They want to help people and contribute to society. When asked about their career goals, the majority of apprentices identified these top three goals:

- + Be an expert in their chosen skilled trade
- + Have a job that gives them financial security
- + Mentor future apprentices and tradespeople.⁹

Figure 4: What are Your Career Goals?¹⁰



n=648

Note: Percentages may sum to >100% since multiple responses were accepted.

⁹ CAF-FCA, *Career Entry, Training and Completion in the Skilled Trades: Apprentice Perspectives*, (Ottawa: CAF-FCA 2020).

¹⁰ Ibid.

9.

CAREER ADVANCEMENT OPPORTUNITIES

There are many opportunities for career advancement in the skilled trades. After certification is achieved, an individual may earn additional credentials. Tradespeople find their practical experience at the workplace along with their technical knowledge is invaluable when they pursue diplomas or degrees in fields such as business, engineering, project management or education. Tradespeople experiment with new technologies and apply sustainable practices to support the green economy. Individuals who start off as apprentices use their skills and knowledge as they progress throughout their careers to become the future leaders and innovators.

Figure 5: Opportunities for Obtaining Additional Training and Credentials



When surveyed, journeypersons told us that apprenticeship is a solid foundation to diverse career advancement opportunities:

39% of them held supervisory positions as forepersons (the largest percentage)

31% of them were business owners at one point during their careers

23% of them were managers.¹¹

¹¹ CAF-FCA, *The Benefits of Skilled Trades Careers in Canada: Journeyperson Perspectives and Experiences*, (Ottawa: CAF-FCA, 2015).

Figure 6: Career Advancement Opportunities in Apprenticeship¹²



To hear more from journeypeople about why they chose the apprenticeship route and the value of the skilled trades career path, check out these video and podcast profiles:

[Videos - Careers in Trades >](#)

[Videos & Podcasts - CAF-FCA >](#)

¹² Ibid.

10.

THE APPRENTICESHIP ADVANTAGE

Apprenticeship training provides nine significant benefits:

1. interesting work
2. earn-while-you learn
3. incur less debt
4. learn from a journeyperson mentor on-the-job
5. use advanced technology
6. support sustainable communities
7. obtain a nationally and internationally recognized credential
8. lifelong learning
9. become a business owner.

Apprentices report finding work in the skilled trades interesting because they get to solve practical problems and apply their learning in a real-life work setting. Not being in a lecture hall or office all day is appealing to these learners.

Apprentices receive a salary from the employers that hire them. This salary is equitable within the industry and also in accordance with provincial/territorial standards. An apprentice's salary may increase each year as they progress toward certification. Debt loads after completion of apprenticeships are much lower compared to other college and university programs since apprentices "earn while they learn." Apprentices may also receive federal incentive and completion grants during their apprenticeships. Provincial/territorial financial supports may also be available. See what is available in your province or territory by searching the *Skilled Trades Network*.

While in a technical training institution such as a college, private training or union training centre, many apprentices also collect Employment Insurance (EI) benefits that represent a percentage of their salary. Some employers will "top up" these EI benefits or continue to pay an apprentice's salary while they attend their technical training. Apprentices may also receive the *Canada Apprentice Loan* while they complete their technical training.

For more information about the grants and loan, see the section about financial supports.

Apprentices have an opportunity to develop their skills by working alongside a highly qualified journeyperson who provides training on-the-job. These mentors share their experience and pass along valuable insights about how to succeed in their trade.

Apprentices work with cutting edge, advanced technology on-the-job and at technical training. The integration of information and communication technologies into machinery, equipment and vehicles of all types, including electric cars, means tradespeople now use sensor-based diagnostic technologies, program on-board controllers and correct malfunctions that originate in electronics systems. 3D visualization technologies enable journeypersons to program machinery to cut, drill and grind components for later installation on a building site based on architectural and engineering drawings and modelling software. Apprentices train using the latest learning technologies such as simulators and virtual reality.

Apprentices support local communities by applying sustainable building techniques using natural building products and locally sourced produce. They re-build infrastructure and homes after natural disasters.

Apprentices may earn a Red Seal endorsement which is a nationally and internationally recognized credential that helps journeypersons obtain employment in other provinces, territories and countries.

Apprentices can be lifelong learners who improve their skills and take further training to keep up with the latest industry trends, technologies and sustainability practices. They can take courses at training centres, at college or university or online.

Many tradespeople start their own companies, become business owners and support employment in their local communities by hiring their own apprentices and journeypersons.

Check out the Consider a Career in The Skilled Trades and the Why Apprenticeship videos:

Videos - Careers in Trades >



BUILDING A LEGACY

Cassandra Neil chose the electrical trade because there was a major hydroelectric development near her hometown. It was the company's reputation for employing many Indigenous peoples that attracted her to this potential employer. Working on a team also appeals to Cassandra. As she says, "It feels great to know that as an electrician, I have the ability to work as a team member on huge megaprojects, and to construct things that will last for decades to come." Cassandra says she loves her trade because it is so satisfying to work hands-on to accomplish practical work. As Cassandra says, "It gives me great pride to be able to show my daughter things that I've done, or houses I've worked on. To me, these projects are my legacy that I can one day tell my daughter about, and that is a great feeling."

EXCITED TO WORK EVERY DAY

Andrea Suderman likes the plumbing trade because there is such a variety of tasks and she is never bored on-the-job. She has no school-related debt and is now making \$80,000 a year. The future opportunities that come with a skilled trades career inspire Andrea. "I wake up every day excited to work," she says, "because I know I'm not just spinning my wheels never getting ahead. I can own my own business and apprentice people." Andrea felt the time she spent in the shop was the most valuable part of her pre-apprenticeship program. She became comfortable using different tools and this gave her confidence in her abilities. As Andrea recalls, "I was a housewife and then I did home care for years before I got into the trades and I wasn't sure if the trades were for me. The second they put a torch in my hand and showed me how to use it was such a thrill. I couldn't wipe the grin off my face!" After her pre-apprenticeship program, Andrea decided she wanted to become an apprentice. She found her first employer sponsor by doing an internet search for local plumbing companies. Some day Andrea would like to manage her own projects. Andrea has this advice for young people: "Don't be afraid to fail. You will make many mistakes, but show up on time, be ready to work and be organized. Be willing to invest in your career and, eventually, with experience, you can learn to fix your mistakes."

11.

ATTRIBUTES FOR SUCCESS IN APPRENTICESHIP

As educators, you play a key role in shaping young minds and influencing the career ambitions of your students. The following questions may help to identify students with the right aptitude and qualities for a career in skilled trades.

A career in the skilled trades requires knowledge and skill, including:

- good literacy
- mathematical and analytical skills
- problem-solving skills
- digital skills
- attention to detail
- an aptitude for visualizing the end product
- creativity and imagination
- coordination and dexterity
- the ability to work with tools
- computer proficiency.

Individuals who thrive in the skilled trades typically possess...

- good hand-eye coordination
- a talent for tackling mechanical challenges
- an eye for detail physical dexterity and stamina
- an ability to solve mathematical problems
- an ability to use digital devices and computers
- curious about robotics and emerging technologies
- an ability to think analytically to arrive at a solution
- a creative talent.

The work environment in the skilled trades may involve...

- programming machinery
- using a smartphone and computers
- working with tools or robotics to achieve a task
- being physically active
- being busy and constantly on the move
- working outside.

Individuals in the skilled trades are typically motivated by...

- seeing their achievements at the end of the day
- wanting to earn while they learn, rather than taking on student debt
- being keen to work with the latest technologies such as robotics, advanced machinery and computers
- making a good salary
- lifelong learning
- a rewarding career
- the ability to learn new technologies.

Check out the Making the Most of Your Apprenticeship video: [Videos - Careers in Trades](#)

For more information about Essential/Skills for Success supports, check out the *Skilled Trades Network*: [Apprentice Resources - CAF-FCA](#)

Skills are developed over time and help and support is available if students require assistance with improving their skills.

12.

SKILLS FOR SUCCESS

Some EXCITING news out of the world of Essential Skills. They've had a little makeover, a renovation one might say. The transition has happened from Essential Skills to Skills for Success. Skills for Success are skills that help you in a quickly changing world. Everyone benefits from having these skills. They help you to get a job, progress at your current job and change jobs. The skills also help you become an active member of your community and succeed in learning.

The Skills for Success model is for all Canadians who need to improve their foundational and transferable skills. The model responds to the needs of the current and future labour market.

Skills for Success Makeover >

WHAT'S CHANGED

Here is what changed in the move from the Essential Skills framework to the new Skills for Success model.

- Two new skills: **Adaptability** – which integrates continuous learning – and **Creativity and Innovation**
- Document Use integrated in **Reading, Writing and Numeracy**
- The scope of computer use is now broader to cover **Digital**, which includes the use of different digital devices and platforms
- Oral communication is now **Communication** and includes broader concepts, such as non-verbal communication
- Working with others is now **Collaboration** to reflect a broader scope, which contains inclusivity and respect for diversity
- Thinking skills, which includes critical thinking and decision-making, is now **Problem Solving**.

Skills for Success are the skills needed to participate and thrive in learning, work and life.



Skills for Success include skills that are foundational for building other skills and knowledge and important for effective social interaction. These skills overlap and interact with each other, and with other technical and life skills. They are inclusive and can be adapted to different contexts.

Skills for Success are for everyone – employers, workers, training providers, governments, and communities.

Skills for Success and the Skilled Trades and Apprenticeship

Skills for Success are used in all trades, in different ways and at different levels of complexity. Here are some examples:

- Reading and understanding specification sheets, manuals and code books when working, studying, and training
- Entering numbers and information into tables, checklists and forms
- Studying and taking notes in class
- Making calculations using formulas
- Writing short notes in logbooks and completing incident reports
- Talking to others to share information, coordinate work, ask questions and discuss issues
- Resolving problems using a troubleshooting process
- Using a computer to look up information, write an email or create a spreadsheet
- Participating in training and mentoring.

THE FACTS

- › 74% of employers find Skills for Success (formerly Essential Skills) relevant to their business¹³
- › Employers report that graduates entering their workplace have only 30% of the Skills for Success needed for the job
- › Canadians aged 16-24 rank below average in their literacy and numeracy skills compared to 23 other countries¹⁴
- › In Canada, approximately 28% of your earnings is directly related to your Skills for Success
- › Apprentices with the Skills for Success they need for their trade are eight times more likely to pass their technical exams
- › 66% of employers feel that youth are inadequately prepared for the workforce.¹⁵

Having an employee with higher level of Skills for Success is much more valuable to potential employers because the individual will have:

- › an attention to safety
- › the ability to work in a team setting (Collaboration)
- › a greater aptitude in problem solving (Problem Solving which includes using Critical Thinking)
- › improved client service skills (Communication)
- › an ability to adapt to change (Adaptability)
- › an advanced knowledge of numerical skills, including estimation, budgeting and calibrations.

Skills shortages remain a significant challenge in Canada. Our country supports initiatives that help ensure Canadians have the Skills for Success needed to participate fully in the labour market and in their communities.

13 See: <https://www.canada.ca/en/services/jobs/training/initiatives/skills-success/understanding-individuals.html>

14 Ibid

15 Ibid



13.

JOURNEYPERSON INCOME

Skilled tradespeople earn good pay. The majority have access to permanent, full-time employment with the potential to earn six figure incomes. Most journeypersons who participated in the Statistics Canada National Apprenticeship Survey were satisfied with their pay, their job security and the workplace health and safety conditions. They experienced the following positive labour market outcomes:

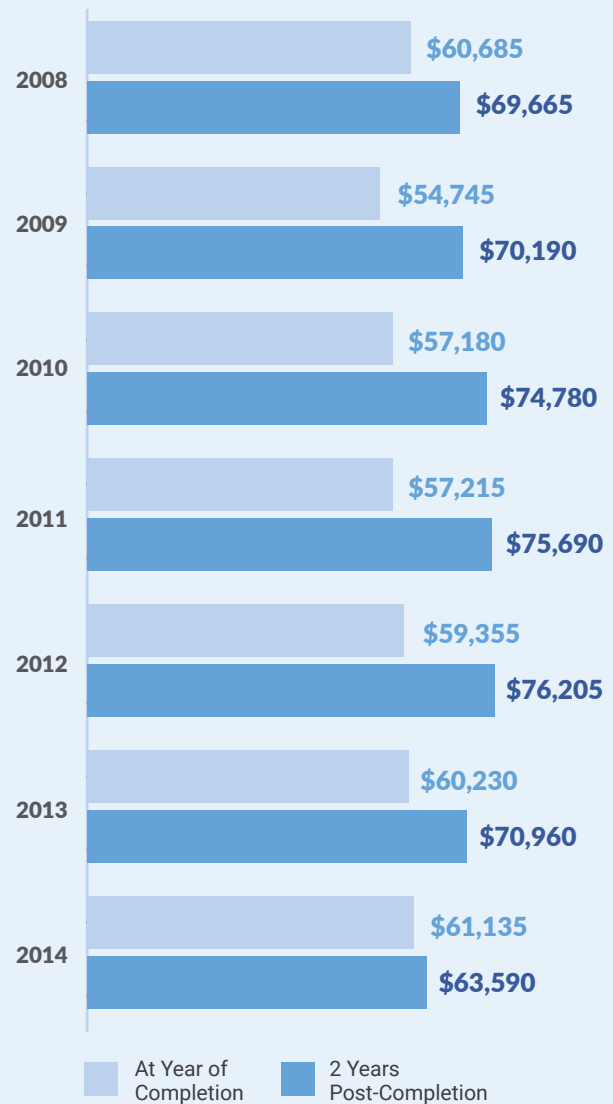
- permanent, full-time employment with benefits
- average annual earnings of \$69,512
- working in a job related to their trade.¹⁶

Statistics Canada has produced data that links tax files and occupations and that provides further insight into journeyperson incomes. The analysis is based on the incomes of 15,650 journeypersons in ten Red Seal trades:

1. Automotive Service Technician
2. Carpenter
3. Construction Electrician
4. Cook
5. Hairstylist
6. Heavy-Duty Equipment Technician
7. Industrial Mechanic
8. Plumber
9. Steamfitter-Pipefitter
10. Welder.

Figure 7 indicates the median income at the time of certification and the median income two years after certification for the 2008 to 2014 time period. Based on the analysis of the 10 trades, once the individuals became certified, their median income was between \$54,745 to \$61,135. Two years after certification the median income ranged from \$63,590 to \$76,205.¹⁷

Figure 7: Median Employment Income (\$) at Certification and 2 Years After Certification for 10 Red Seal Trades, 2008 to 2014¹⁸



¹⁶ Kristyn Frank and Emily Jovic, *National Apprenticeship Survey Canada Overview Report 2015*, (Ottawa: Minister of Industry, 2017). The final sample size for the National Apprenticeship Survey was 28,469.

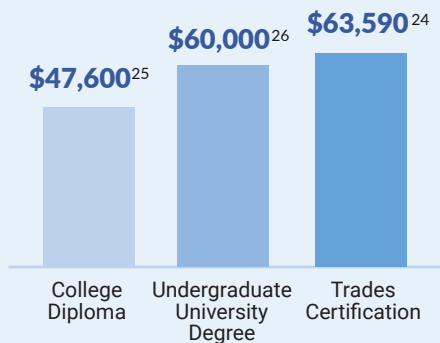
¹⁷ CAF-FCA, *Apprentice Demand in the Top Ten Red Seal Trades: A 2019 National Labour Market Information Report*, (Ottawa: CAF-FCA, 2019).

¹⁸ Ibid.

INCOMES OF POST-SECONDARY GRADUATES

There is comparable 2014 information about salaries for journeypersons and college and university graduates two years after completion. The median journeyperson income was \$63,590.¹⁹ This salary was higher than what college or undergraduate university students earned based on information from Statistics Canada and a university survey. Those who earned a college diploma in architecture, engineering and related technologies had a median income of \$47,600.²⁰ For university graduates in the same fields of study, the median income was \$60,000.²¹ See Figure 8. In fields of study such as business, the humanities and the social sciences, the median income was \$41,500.²² Another survey from 2013 indicated university graduates worked for six-to-seven years before their median incomes were \$63,000.²³

Figure 8: Median Employment Income for Post-Secondary Graduates 2 Years After Completion, 2014



¹⁹ Ibid.

²⁰ Statistics Canada, *Labour Market Outcomes for College and University Graduates, 2010 to 2014*, Infographic from Postsecondary Student Information System, 2009/2010 to 2014/2015 and T1 Family File, 2012 to 2016.

²¹ Ibid.

²² Ibid.

²³ Forty-one Canadian universities conducted a survey of their baccalaureate graduates. Over 21,000 graduates provided information about their current employment situation. See the Canadian University Baccalaureate Graduate Outcomes Project, *Labour Market Outcomes: Summary Results of a Survey of 2006 and 2007 Canadian University Baccalaureate Graduates*, June 2014.

²⁴ Median income for ten Red Seal trades.

²⁵ Figure represents the income for fields of study such as architecture, engineering and related technologies.

²⁶ Figure represents the income for those in fields of study such as architecture, engineering and related technologies.

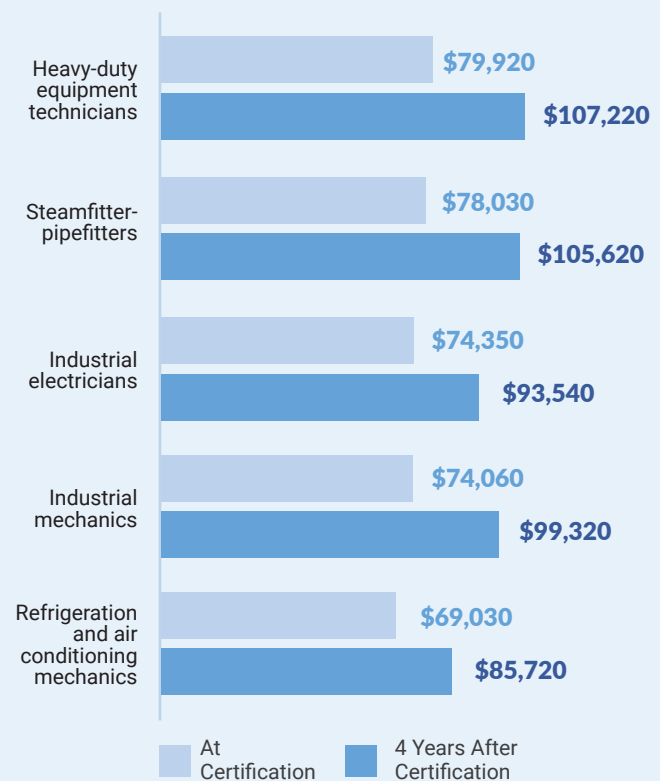
²⁷ Statistics Canada, *Pathways and Earnings Indicators for Registered Apprentices in Canada*, *The Daily*, Wednesday December 5, 2018.

²⁸ Ibid.

THE HIGHEST PAYING TRADES

Journeyperson incomes vary based on economic cycles, the trade and the industry sector. A 2010 Statistics Canada study compared the highest median income at certification to income four years later. Heavy-duty equipment technicians had the highest salaries, followed by steamfitter-pipefitters, industrial electricians, industrial mechanics and refrigeration and air conditioning mechanics.²⁷ See Figure 9.

Figure 9: Median Employment Income (\$) at Certification and 4 Years After Certification, 2010²⁸



14.

OPPORTUNITY: SKILLS SHORTAGES AND TRADES IN DEMAND

From 2021 to 2025, to sustain workforce certification levels across 50 plus Red Seal trades, Canada needs 375,026 apprentices to meet anticipated demand. Targeted registration numbers provide an overview of workforce demands across provinces and regions:

- + Ontario: 148,988
- + BC: 83,277
- + Alberta: 75,467
- + Atlantic Canada: 23,966
- + Quebec: 21,254
- + Manitoba: 13,914
- + Saskatchewan: 8,160²⁹

Although there are 50 plus Red Seal trades, apprentice demand nationally is concentrated in the following 15 Red Seal trades:

1. Automotive Service Technician
2. Boilermaker
3. Bricklayer
4. Carpenter
5. Construction Electrician
6. Cook
7. Hairstylist
8. Heavy Duty Equipment Technician
9. Industrial Mechanic (Millwright)
10. Mobile Crane Operator
11. Plumber
12. Refrigeration and Air Conditioning Mechanic
13. Sheet Metal Worker
14. Steamfitter/Pipefitter
15. Welder.³⁰

²⁹ CAF-FCA, *Apprentice Demand in the Top Ten Red Seal Trades: A 2021 National Labour Market Information Report*, (Ottawa: CAF-FCA, 2021).

³⁰ Ibid



As outlined in Figure 10, trades in demand vary by region. Given economic trends, upcoming projects, retirements and apprenticeship registrations and completions, there are certain trades where not enough apprentices are being trained to meet the demand in the labour market. Trades at-risk are represented by a red circle.³¹

Figure 10: Summary of Projected Supply and Demand Conditions, by Province, Top 15 Red Seal Trades, 2021 to 2025

Summary of Projected Supply and Demand Conditions, by Province, Top 15 Red Seal Trades, 2021 to 2025

TRADE	BC	AB	MB	SK	ON	QC	ATL
Automotive Service Technician	○	○	○	○	●	—	●
Boilermaker	○	○	○	○	○	○	●
Bricklayer	○	○	●	○	○	●	○
Carpenter	○	○	●	○	○	●	○
Construction Electrician	●	●	●	●	●	●	●
Cook	●	○	○	○	○	○	○
Hairstylist	○	○	●	○	●	○	○
Heavy Duty Equipment Technician	●	●	●	●	○	○	○
Industrial Mechanic (Millwright)	○	○	○	●	○	○	●
Mobile Crane Operator	●	●	○	●	●	●	○
Plumber	●	○	●	●	●	○	●
Refrigeration and Air Conditioning Mechanic	●	●	●	○	●	●	●
Sheet Metal Worker	●	○	●	○	●	●	●
Steamfitter/Pipefitter	○	●	●	○	●	●	●
Welder	○	○	○	○	○	●	○

○ **At Risk:** Certifications Required Exceed Projected Completions

● **Balanced Conditions:** Certifications Required In-Line with Projected

● **Ample Supply:** Projected Completions Exceed Certifications Required

Source: Statistics Canada (RAIS), 2019; CANTRAQ Prism Economics (2021)

Note: Data for automotive service technician were not available in Quebec and thus not included in the table above.

31 Ibid

15.

FINANCIAL SUPPORTS

To help apprentices, the federal and provincial/territorial governments offer a variety of financial incentives.³² Examples of federally supported financial incentives for registered apprentices in Red Seal trades include:

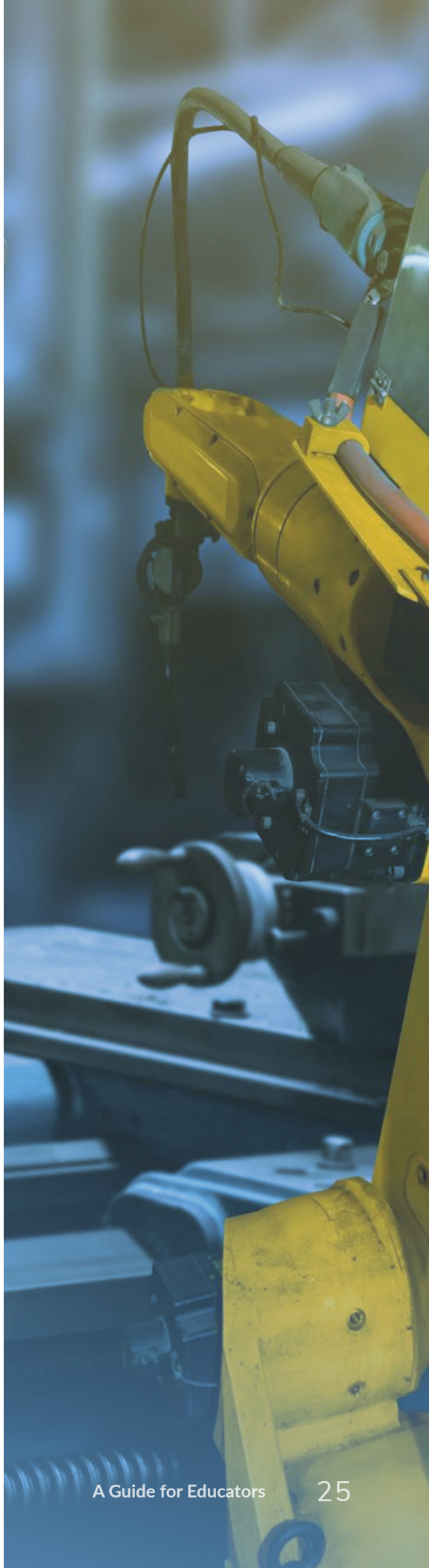
- **The Apprenticeship Incentive Grant:** A taxable cash grant of \$1,000 per year or level, for a lifetime maximum amount of \$2,000 per person.³³
- **The Apprenticeship Completion Grant:** A one-time taxable cash grant lifetime amount of \$2,000 per person for individuals who complete their apprenticeship training and obtain their journeyperson certification.
- **Canada Apprentice Loan:** This loan helps individuals cover the cost of their training up to \$4,000 per period of technical training. Apprentices can access the loan for up to five periods of technical training. The loan is interest-free for up to six years, as long as the apprentice has a confirmed registration in a Red Seal Trade apprenticeship program. The apprentice does not have to make any loan repayments as long as the loan is in interest-free status.³⁴

Provincial/territorial financial supports may also be available. See what is available in your province or territory by searching the *Skilled Trades Network: [Apprentice Resources - CAF-FCA](#)*

³² For examples of the provincial/territorial incentives available, see the Skilled Trades Network: <http://caf-fca.org/skilled-trades-network/>.

³³ Additional information about the grants and loans is available at the Employment and Social Development Canada website: <https://www.canada.ca/en/employment-social-development/services/apprentices/grants.html>.

³⁴ For more information about the Canada Apprentice Loan, see: <https://www.pca-cal.ca/en/Apprentice-Loan-Information/Determine-your-eligibility>.



16. ACTIVITIES

There are many interesting ways to explore skilled trades and apprenticeship with your students. This section includes a selection of classroom activities to get your students thinking about the skills and knowledge required to perform a trade. Since teaching is a collaborative activity, CAF-FCA and Skills Canada invite you to submit some successful trades-linked activities and lesson plans of your own and we will add them to future editions of this resource. Please submit them to info@caf-fca.org.

QUICK TIPS

Invite a skilled tradesperson to your classroom to talk to your students about their occupation. Tradespeople can be found through:

- + **local businesses**
.....
- + **trade associations**
.....
- + **labour groups**
.....
- + **community colleges.**
.....

Contact the Skills/Compétences Canada office nearest you (see contact list in Section 4). Their staff will be happy to help you organize a classroom presentation for your students about skilled trades.

Organize a field trip for your students to a skills competition in your region. These events are exciting Olympic-style skills competitions that showcase students' technical and leadership skills. Students participate in practical challenges designed to test

skills required in technology and trade occupations. For more information, contact the Skills/Compétences Canada office nearest you.

Assign a research project on a skilled trade. Start by dividing your class into groups. Have each group select a trade they are most interested in. Have them write down their initial perceptions and knowledge of their chosen trade. Then have each group research their trade to identify:

- > **the duties involved**
.....
- > **the education and skills needed to perform the trade**
.....
- > **the wage and the number of hours generally worked**
.....
- > **the work environment.**
.....

Finally, have each group make a presentation on their trade to the class. Make sure they talk about their initial perceptions and how they are different from the reality of the trade.



CLASSROOM ACTIVITY 1

WE ALL SCREAM FOR ICE CREAM!

A tasty activity on chemical reactions and heat transfer.

Chemical reactions have become a part of our everyday life. They are all around us. You may have learned how we can affect the properties of some objects by adding new substances to them. In some places, in the wintertime, people sprinkle salt on roads to lower the freezing point of water. This helps to keep roads free of snow and ice. In this activity, you will take advantage of this scientific principle and get a “tasty” result.

Trade Link: Cook/Chef

RATIONALE

Students will explore properties of fluids and use the particle theory to explain their observations. They also learn about chemical reactions and try to relate them to their own experiences. Cooks take advantage of this knowledge in their preparation of foods. Kitchen chemistry can involve a range of scientific principles.

TEACHER BACKGROUND

- Duration: one 45-minute class
- Group Size: small groups of 4 students (or smaller if you have sufficient supplies)
- Setting: indoors/classroom

MATERIALS

- Soup can, coffee can or small metal container
- A test tube or baby food jar
- 10ml of salt
- Crushed ice
- Celsius thermometer
- 15 ml regular milk (or half and half cream)
- Pinch of sugar
- Vanilla
- Swizzle stick, popsicle stick or thin stick for stirring, about 15cm long

METHOD

In this activity, you will cool the mixture of milk, sugar and vanilla by putting the solution in a test tube and placing it in a container filled with an ice and salt

mixture. It will cool down enough to freeze as the salt and ice take the heat away from the milk solution. This activity and those that follow are based on the resource: “Making Connections: Linking Science and Math with Trades and Occupations,” developed by the NWT Apprenticeship and Occupational Certification.

Here are the steps to follow:

THE ACTIVITY

1. Put crushed ice in the metal container so that it is about $\frac{1}{2}$ full.
2. Add 10 ml of salt to the ice and stir until the temperature is between -8 degrees Celsius and -10 degrees Celsius.
3. If the temperature is not low enough, add more salt and keep stirring.
4. Put 15 ml of milk (or half and half), a pinch of sugar and one drop of vanilla into a CLEAN test tube (or baby food jar).
5. Place the test tube in the metal container and pack the ice around it.
6. Stir your mixture for the next 15 to 20 minutes until your ice cream is ready to eat.
7. Describe all the reactions (physical and chemical) which took place during this experiment.

BRANCHING OUT (EXTENSIONS AND VARIATIONS)

- Challenge students to lift an ice cube floating in water out of a container without touching it. All they are allowed to use is a string and some salt. (Explanation: since salt lowers the freezing point of water, when you put salt on the string and then touch it to the ice, the ice cube under the string will melt a little. As the ice melts, the air around it cools and causes the ice cube to refreeze and the string to become frozen to the ice cube.)
- Invite a cook to come into the classroom and talk about chemical reactions and food chemistry.

INFORMATION “BITE”

During your training as a cook, you will not only learn about kitchen safety and basic cooking principles, but you will also learn advanced preparation techniques for both small and large situations.

A strong background in classification systems will assist you in learning about various types of foods such as sauces, stocks, soups, salads, fish, dairy products and cheeses, baked goods and desserts. Cooks are employed in hotels, restaurants, catering firms, cafeterias, institutions and isolated camps.

Kitchen mathematics includes ratios, recipe conversions, fractions, decimals, and working with invoices and orders.



CLASSROOM ACTIVITY 2 GOING UP?

An activity on hydraulics.

RATIONALE

Students, when studying fluids and hydraulics, learn that fluids have special properties such as viscosity, density, buoyancy and compressibility which are useful in industry and in our daily lives. Most people think of liquids when they hear the word “fluids”, but gases are also fluids. These concepts, combined with a basic understanding of Pascal’s law, have led to numerous inventions such as hydraulic and pneumatic systems which are used every day by heavy duty equipment operators and mechanics. Systems that use fluids to transfer forces are called hydraulic systems.

Trade link: Inspector (Electrical)

The study of fluids and their various properties such as buoyancy, density, viscosity and compressibility has led to inventions which have helped us to do work or make our lives easier. These systems are called hydraulic systems. In this activity, you will design a hydraulic press.

TEACHER BACKGROUND

- Duration: one 45-minute class
- Group Size: small groups of 2-3 students
- Setting: indoors/classroom

MATERIALS

- Two identical syringes (approximate 60ml size)
- One syringe (10ml) Beaker or glass of water
- Plastic tubing approximately 100cm in length (airline tubing for aquarium filters works well)
- Clamps and retort stands to hold syringes (optional), heavy object or weights (kg).

METHOD

This activity should be done over a sink. Students create a hydraulic press using two identical syringes connected by plastic tubing. The experiment can be repeated using one large and one small syringe. In both scenarios, the moving part of the syringe represents a movable piston. Students can use their sense of touch to compare the amount of force required in both cases to move an identical object resting on the larger sized syringe.

THE ACTIVITY

1. Connect two identical large syringes (plungers removed) with plastic tubing (100cm in length).
2. Add water to one until both syringes are full.
3. Keeping the two syringes level, place a plunger into one syringe, pushing it all the way in.
4. Place the second plunger into the open syringe, pushing gently until both plungers are halfway down. You now have a closed system with no air in it.
5. The syringes should be level and held carefully or supported on retort stands with clamps. Place a small, weighted object on top of one of the syringe plungers and push against the other plunger to make it rise. You will need to compare the force used to raise the object in this activity with the force needed in the activity identified in the next step.
6. Repeat this experiment using one syringe from the previous activity and a second smaller syringe. Compare the force needed to move the same weighted objects (placed on the larger plunger) as in the first activity. Which activity required the least amount of force?

BRANCHING OUT (EXTENSIONS AND VARIATIONS)

1. Repeat experiment using a 10ml and a 100ml syringe (if available). Were the results what you expected?
2. Design an experiment to show if the type of liquids used affects the results.
3. Test to see if the experiment will work using “air” as your liquid.
4. Design posters on elevator safety or handicap lifts to promote safety among younger students at your school.
5. Find out how often lift devices in your school are inspected and by whom.

INFORMATION BITE

To be an electrical and/or elevator inspector requires a journeyman ticket as an electrician and/or elevator constructor. Elevator constructors train to install, modify, service and repair electrical and hydraulic elevators, hoists, moving walkways and escalators. Electricians learn about electrical systems, controls and switches, heating and cooling systems, electronics, and lighting. To be successful in either trade, you will need mechanical aptitude, the ability to do detailed and precise work, the ability to read blueprints, and a willingness to continually upgrade your knowledge and skill levels regarding new innovations in the industry. Inspectors generally have extensive experience in the trades area and work for government and/or regulatory agencies.





CLASSROOM ACTIVITY 3

KEEP YOUR COOL!

An activity on minimizing heat energy transfer.

Trade Link: Refrigeration and Air Conditioning Mechanic

RATIONALE

Heat is a form of energy very important to our lives and to our community. Students should have an opportunity to explore properties of heat through discovery. Students at this level learn about the kinetic molecular theory and the particle theory. They can explain heat loss or transfer using these theories.

METHOD

In this activity, students will be asked to design a device to minimize heat loss. Using materials provided by the teacher, students will create a device to hold a container of ice-cold water. Although the teacher provides generic materials for this activity, students should be encouraged to be creative and to identify other readily available materials for use in their designs. The students will take the temperature of the ice-cold water at the beginning of the activity and after each half hour until the end of the day or until the water's temperature is at room temperature. The data can be displayed in a graph that charts time versus temperature.

TEACHER BACKGROUND

- Duration: two 45-minute classes (includes taking temperature readings during the first day)
- 'Group Size: small groups of 4 students
- Setting: indoors/classroom

MATERIALS

- Container of ice water (plastic bottle, cup with lid, graduated cylinder, etc.)
- Tape (duct tape or masking tape)
- Materials for container could include cardboard, rigid insulation, plastic wrap, tinfoil

THE ACTIVITY

Day One:

1. In your group, brainstorm ideas on what your design might look like and what materials you would like to use.
2. Once you have a design in mind, make a sketch of it on a piece of paper and list all the materials you will be using on the same sheet of paper.

3. Before you build your prototype, have your teacher initial it to indicate that your design has been approved for construction.
4. Choose someone from your group to measure out 100ml of the ice-cold liquid once you have built your prototype.
5. Place the container of ice-cold liquid in your newly created design after you take a temperature reading of the ice water.
6. Take a temperature reading every half hour for the rest of the day or until you have to go home.

Day Two:

1. Plot a graph of temperature versus time to show your data, using your group's temperature readings.
2. Once everyone in the class has had a chance to record their data, determine which designs were the most effective.

BRANCHING OUT (EXTENSIONS AND VARIATIONS)

1. Try using different materials or improving on your design by combining the best ideas generated in the designs of your fellow students.
2. Create different containers to hold the ice water and repeat the experiment using your original device.
3. Organize data in a spreadsheet (use of computer application optional).

INFORMATION BITE

As a refrigeration and air conditioning mechanic apprentice, you would learn about the science related to changes of state, heat and temperature, properties of coolants, compression, heating systems, electricity, equipment controls, gas laws and small engines. Training involves ordering, assembling, installing, calibrating, and testing industrial and commercial equipment. You would work for companies that install and service air conditioning and refrigeration systems.



CLASSROOM ACTIVITY 4

ONLY YOUR HAIRSTYLIST KNOWS FOR SURE...

Chemical reactions involving the bleaching and/or streaking of hair

Trade Link: Hairstylist

RATIONALE

Modern chemistry is founded on the science related to atomic theory. Chemical reactions have become so commonplace in our daily lives that we take them for granted. Using examples that are part of a student's normal experience, such as hair colouring, can help create strong connections between theory and understanding. In this activity, students will explore the dyeing or bleaching of hair - a common trend among today's youth.

As you study atoms and elements, you will learn more about what happens when a chemical reaction takes place. In this activity, you will bleach or streak hair and observe the chemical reactions that take place over time.

METHOD

Using clean hair (collected from hair stylist/barber shop, student volunteer or animal hair), students will experiment with the bleaching process and monitor colour change over time. When dyeing hair, you will notice a gradual change over time. Students can leave the last piece of treated hair to sit overnight and check on it the next morning. This activity works best if you start with brown hair and use a commercial bleaching or streaking kit.

TEACHER BACKGROUND

- Duration: two 45-minute classes
- Group Size: small groups of 4 students
- Setting: indoors/classroom

MATERIALS

- Bleach kit or streak kit for hair (available commercially)
- Hair (ask hairstylist for a small bag of clean dark brown hair or have someone in class volunteer hair)
- Beaker or glass jar
- Scotch tape
- Pencil or stick
- Stopwatch or watch with timer

GETTING STARTED

As you study atoms and elements, you will learn more about what happens when a chemical reaction takes place. In this activity, you will bleach or streak hair and observe the chemical reactions that take place over time.

Note: Black hair requires additional treatment to successfully bleach it.

THE ACTIVITY

1. In this activity, you will use six small samples of human or animal hair about 5-10 cm long.
2. Put tape around one end of each sample of hair. Put one of them on the side to use as a starting reference point. Tape remaining samples to a pencil (or another object) so that they are lined up in a row and hang down.
3. Treat each sample of hair according to the instructions included with the kit. Make note of the time.



4. At fifteen-minute intervals, remove one sample of hair, rinse it with water and tape it to a piece of paper once it has dried.
5. Leave the last sample of treated hair to sit overnight and remove it the next morning.
6. You should have six samples of hair hanging on your sheet in the order in which they were removed from the chemicals. Beside each bundle of hair, write the number of elapsed minutes before it was removed.
7. What observation can you make?

BRANCHING OUT (EXTENSIONS AND VARIATIONS)

1. Repeat the experiment with different coloured hair and try to predict the various colour changes ahead of time.
2. Repeat the experiment using natural dyes such as lichens and berries.
3. Is there a relationship between hair colour, thickness and dyeing time?
4. Invite a hairstylist to come in and do a demonstration of streaking techniques.

INFORMATION BITE

During your training as an apprentice hairstylist, you will learn the science related to the dyeing and bleaching of hair. Other tasks in the hairstylist trade include hair and scalp treatment, chemical preparations, hair cutting and salon management. You will also learn about servicing wigs, eyebrow/eyelash treatment and manicuring. Most hairstylists work in salons, but many are self-employed, working part-time or in a sales-related position.





CLASSROOM ACTIVITY 5

FEELING BOXED IN?

An activity on geometry turning 2-D design to 3-D models.

Trade link: Carpenter

RATIONALE

This activity reinforces in the student's mind the prevalence of geometry in our everyday world. A simple design for a small cabin can be created when a 2-D design is translated into a 3-D model. The economics of packaging and design start on the 2-D plane and evolve to the 3-D product after much deliberation and study. One of the skills of carpentry is to be able to think freely between 2-D plans and 3-D products.

In this activity, you will move back and forth between two-dimensional plans and three-dimensional models. Many people who work from plans or blueprints have the ability to do this with relative ease. You can too, with a little practice.

METHOD

In this activity, students do some backward design in terms of unravelling a pre-made package so that it looks like a 2-D polygon. The notion of not wasting any materials is important to the design and production processes. Students also do some forward-thinking design by creating a 2-D polygon design that, when folded together, becomes their new 3-D "product". Students are asked to create a 2-D floor plan of a small cabin or house which, when folded together, becomes the end product.

TEACHER BACKGROUND

- Duration: one 45-minute class
- Group Size: individual
- Setting: indoors/classroom

MATERIALS

- Various cardboard containers – herbal tea boxes, toothpaste box, spaghetti noodle box, Kraft Dinner box, file folder box, cereal box, milk carton, etc.
- Ruler
- Graph paper

THE ACTIVITY

1. Take one of the cardboard boxes provided and try "backward design" – carefully unwrap or unfold it until it is a flat two-dimensional object sitting in front of you. Keep in mind that when this package was designed, it started out as an idea on paper like this 2-D object, long before it was ever put together.
2. Fold your package from step 1 back together and try to imagine it being unfolded in your mind as you sketch it on a piece of graph paper. Unfold it and compare it to your sketch.
3. Imagine that you are going to build a design for a small cabin or house out of cardboard. Sketch on graph paper what it would look like. Remember, the idea is to design it in such a way that it can be cut out as one piece and folded (just like a model of a polygon) into the final product. Cut out your design, fold it together and see how it looks. Be sure to put in some flaps for glueing and taping.

BRANCHING OUT (EXTENSIONS AND VARIATIONS)

1. Transfer your design to balsa wood, Styrofoam or bristol board and construct your model.
2. Try adding little extras to your original design such as a front porch, stairs, maybe even a garage.
3. Try working with a CAD (computer assisted drawing) program to develop your design.
4. Put your model house on a landscaped lot.

INFORMATION BITE

Working with drawings and blueprints is a daily activity for a carpenter. This trade involves knowledge about the many materials used in construction, hand and power tools, and the science of building construction (footings, formwork, walls, roofs, floors, room finishes, etc.). An apprentice carpenter learns to construct, erect and repair structures and fixtures made of wood. Most carpenters are employed by construction contractors, are self-employed or perform construction or maintenance work for government agencies or manufacturing firms.



CLASSROOM ACTIVITY 6

A REALLY HOT TECHNO-QUILT

A visual arts activity using iron-on transfers.

Trade Link: Printing and Graphic Arts

RATIONALE

Images designed to convey specific messages are all around us. Billboards, advertisements and magazines geared to students use strong visual images to get their point of view across. In this activity, students design visual images which, when printed on a large white bed sheet via iron-on transfers, become a striking quilt (banner) used to convey a message to the rest of the school.

METHOD

You will need a commercial Iron-On T-shirt Transfer Kit in order to do this activity. Each package normally contains ten iron-on transfers. Students will need to follow the instructions that come with the kit closely. Kits are very clear as to which type of platform (IBM/MAC), software program (must be able to reverse images), sheet (cotton), and printer types can be used. Examples of a theme for visual presentation selected by the class include education week, science fairs or spirit week. In order to make the end result look like a quilt, specific frames or border types could be used in each student generated transfer. This will give the impression of each sheet being closely linked to others.

TEACHER BACKGROUND

- Duration: one 45-minute class
- Group Size: pairs or small groups of 3 students
- Setting: indoors/classroom (with computers or computer lab)

MATERIALS

- Iron-on T-shirt Transfer Kit(s) i.e., HP Iron-On T-shirt Transfers, Invent It Iron-On Transfers
- Sheet (cotton)
- Hand iron and ironing surface – Formica counter, not ironing board or metal
- Computer and graphics software (i.e., Adobe Photoshop) with the ability to flip horizontal or mirror the image, and a compatible printer.

THE ACTIVITY:

1. Your teacher will provide direction as you decide on a topic or theme to present. As a class, brainstorm possible images or symbols that might be created.
2. The iron-on transfer kit(s) you will be using comes complete with instructions as to which type of computer platform (PC/ MAC), software program (must be able to reverse images), and type of sheet (cotton), and printer types can be used. Read the instructions carefully.
3. Once your transfer has been generated on the computer, run a test print before using the actual transfer on your printer. Make sure your image is reversed and the printer is compatible with the transfers (check instructions).
4. Hand iron the transfers onto a white sheet to make it look like a quilt. (Tip: each image should have a recognizable frame or border pattern to give it a quilt-like look when put together.)

BRANCHING OUT (EXTENSIONS AND VARIATIONS):

1. Design a visual graphic for a Halloween loot bag and transfer your iron-on to a pillowcase. Use it as a door prize at a school assembly.
2. Design T-shirts for a special event, a school assembly or for student council elections.

INFORMATION BITE

The technology used by printing and graphic arts tradespeople has changed significantly over the past ten years, moving more and more from hand-tools to desktop publishing systems. Printing and graphic tradespeople generally work for printing and publishing companies, and large corporations with in-plant printers. The length of apprenticeship is usually four years with related in-school training each year. To be successful in this trade, you need good literacy and numerical skills, computer literacy, accurate colour perception, the ability to pay careful attention to detail, and the ability to work under the pressure of deadlines.

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 [CAREERSINTRADES.CA](https://careersintrades.ca)