

# 2020 CAREER GUIDE



## TYCOP

TECHNICAL YOUTH CAREER  
OUTREACH PROJECT

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# Contents

<b>What is TYCOP? .....</b>	<b>2</b>
<b>About OFNTSC .....</b>	<b>3</b>
<b>Career Highlight – Engineering .....</b>	<b>4</b>
Engineering Role Model – Skylar Manitowabi .....	5
<b>Career Highlight - Environment and Solid Waste .....</b>	<b>6</b>
Environment and Solid Waste Role Model – Heidi Manitowabi .....	7
<b>Career Highlight – Housing .....</b>	<b>8</b>
Housing Role Model – Emily Ouellette .....	9
<b>Career Highlight – Mining .....</b>	<b>10</b>
Mining Role Model – Dean Debassige .....	11
<b>Career Highlight – Science .....</b>	<b>12</b>
Science Role Model – Vanessa Smith .....	13
<b>Career Highlight – Trades .....</b>	<b>14</b>
Trades Role Model – Ashley Montour .....	15
<b>Career Highlight – Water and Wastewater .....</b>	<b>16</b>
Water and Wastewater Role Model – Amy Waboose .....	17
<b>Careers-at-a-Glance .....</b>	<b>18</b>
<b>Acknowledgements .....</b>	<b>20</b>
<b>Resources .....</b>	<b>20</b>

# What is TYCOP?

The Technical Youth Career Outreach Project (TYCOP) empowers and encourages First Nations youth to study and pursue careers in science, technology, engineering and math (STEM).

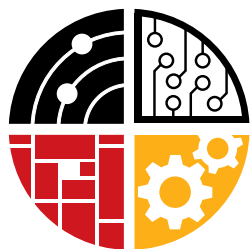
By showcasing powerful First Nations role models who are currently studying or working in these fields, we hope to inspire youth to choose a career in a technical industry such as architecture, engineering, environment and solid waste, mining, science, trades or water and wastewater.

## Building capacity

By choosing a career in the STEM field, you will help to create future capacity in areas that help First Nations achieve technical self-reliance.

## Why should you choose a technical career?

- Better salary
- High demand for technical careers
- Give back to your community
- Significantly better health outcomes
- Rewarding experience



# About OFNTSC



Established in 1995, the Ontario First Nations Technical Services Corporation (OFNTSC) was created to provide expert technical advisory services to First Nations in Ontario.

OFNTSC also creates future capacity by encouraging youth to pursue careers in science and technology and offers scholarships to help them with their educational pursuits.

We envision a future where First Nations have the capacity to deliver self-reliant technical services for future generations.

The Ontario First Nations Technical Services Corporation will influence impactful and measurable change, positioning and supporting First Nations to meet the contemporary and future challenges associated with their paths to self-reliance and self-sufficiency.



# Engineering

Engineering combines math and science in real world applications. It is concerned with the design and building of engines, machines and other structures that you use in your every day life.

## SKILLS & INTERESTS:

- Design
- Planning
- Art
- Math
- Computer literacy
- Problem solving

## SALARY RANGE:

\$37,440 - \$180,000  
(average: \$87,000)

## CAREER OPPORTUNITIES:

- Infrastructure Specialist
- Housing Inspector
- Junior Architect
- Interior Design
- Construction
- Urban Planning
- Education

## HELPFUL HIGH SCHOOL

### COURSES:

Math, Science, Engineering

## COLLEGE/UNIVERSITY

### PROGRAMS:

- Bachelor of Engineering
- Bachelor of Technology
- Civil Engineering
- Engineering Physics
- Mechanical Engineering

**"You have a community that is really proud of you [...] they are rooting for your success."**

**AGE:** 24

### COMMUNITY:

Wiikwemkoong Unceded Territory

### SCHOOL:

McMaster University

### PROGRAM:

Bachelor of Technology; Civil Engineering Infrastructure with a certificate in Management

## ROLE MODEL:

## SKYLAR MANITOWABI

As a young man from Wiikwemkoong Unceded Territory, Skylar strongly believes that pursuing a technical career will give him the tools and experience he needs to be successful.

After graduating from Algonquin College with an Advanced Diploma in Civil Engineering Technology, Skylar decided to enrol in the Bachelor of Technology - Civil Engineering Infrastructure Technology program at McMaster University. As a result, he has a lot of advice for other youth wishing to take a similar path in school.

"Students that are considering post-secondary schooling should not feel any pressure to have a quick decision about what they want to do for the rest of their lives," said Skylar. "It can be scary to think that but try to base your decision on your own interests/skills/what you are good at and try to find a program that best suits you!"

Skylar values education as a strong foundation to build upon and having hands-on job experience is important to him.

"Seeing the efforts and labour of your work has such a positive impact on you," he said. "That sense of pride in your work will only push you farther in your career."

In the future, Skylar hopes to be an inspiration to First Nation youth both within and outside of his home community. "I hope that my successes in education and a career in STEM will motivate youth to pursue a similar path." Skylar would like to bring what he learned back to his community so he can "integrate new solutions with traditional teachings and most importantly, teach our communities."

Skylar is a recipient of OFNTSC's 2019 Robert Olivier Memorial Award.



# Environment and Solid Waste

The field of Environment and Solid Waste covers a variety of programs. The main goal is to reduce human impact on the environment. Careers in this field range from sampling to assist in the aid of conservation of natural resources, to innovating new ways to reduce waste. It's all about protecting agriculture, wildlife, fisheries, forests, parks and the earth itself.

## SKILLS & INTERESTS:

- Risk Assessment
- Impact Studies
- Problem Solving
- Nature
- Adventure
- Health of communities
- Science

## SALARY RANGE:

\$23,069 - \$74,640  
(\$43,906 average)

## CAREER OPPORTUNITIES:

- Environmental Monitoring Technician
- Environmental Enforcement Officer
- Sustainability Specialist
- Environmental Policy Analyst
- Waste Program Manager
- Solid Waste Engineer

## HELPFUL HIGH SCHOOL COURSES:

Math, Science, Horticulture

## COLLEGE/UNIVERSITY PROGRAMS:

- Environmental Technology
- Environmental Engineering
- Forestry Technician
- Fish and Wildlife Conservation Technician

**"Don't give up.  
Don't lose focus."**

**AGE:** 33

### COMMUNITY:

Wiikwemkoong Unceded Territory

### OCCUPATION:

Waste Management Coordinator

### EMPLOYER:

Waabnoong Bemjiwang  
Association of First Nations

### SCHOOL:

Sir Sandford Fleming College

### PROGRAM:

Environmental Technology,  
Advanced Diploma

## ROLE MODEL HEIDI MANITOWABI

Through her travels as a youth, Heidi learned about the negative impacts that North American lifestyles have on Mother Earth. This was the driving force behind her decision to enter the environmental field. "It took me a little while to connect the dots between being an Anishinaabe-Kwe and my feelings of responsibility towards being a steward of Shkagamik-Kwe (Mother Earth)."

Heidi has completed an advanced diploma in Environmental Technology from Sir Sandford Fleming College as well as Indigenous Environmental Science from Trent University. This career path has allowed her to achieve employment as Waste Management Coordinator at Waabnoong Bemjiwang Association of First Nations.

When it comes to being a role model, Heidi hopes to inspire other youth in her community and beyond!

"I love connecting with our future leaders; letting them know that there are many opportunities in this field of work," said Heidi. "I hope to inspire them, even if it's just a fraction of the amount of inspiration I gain from them."

This career has also given Heidi the opportunity to travel extensively throughout Ontario and Canada. When speaking about how this experience has positively impacted her, Heidi said, "I'm not afraid to do anything on my own anymore. It's quite liberating. I'd miss out on a lot of opportunities if I didn't learn how to keep myself company, let my guard down, and enjoy life unapologetically."



CAREER HIGHLIGHT

# Housing

Housing is a broad term that can be applied to many different careers. Whether you're interested in the design, construction, or inspection stage, you can find a career in Housing that's right for you!

**SKILLS & INTERESTS:**

- Design
- Planning
- Art
- Math
- Computer literacy
- Problem solving

**SALARY RANGE:**

\$37,440 - \$180,000  
(average: \$87,000)

**CAREER OPPORTUNITIES:**

- Infrastructure Specialist
- Housing Inspector
- Junior Architect
- Interior Design
- Construction
- Urban Planning
- Education

**HELPFUL HIGH SCHOOL COURSES:**

Math, Science, Engineering

**COLLEGE/UNIVERSITY PROGRAMS:**

- Architecture Technology
- Construction
- Engineering Technician
- Civil Engineering Technician

“Creative and artistic skills are just as important as the technical ones.”



**AGE:** 22

**COMMUNITY:**

Moravian of the Thames

**SCHOOL:**

St. Clair College

**PROGRAM:**

Architectural Technology

## ROLE MODEL: EMILY OUELLETTE

Emily is currently in her last semester of the Architecture Technology Program at St. Clair College. Creativity comes naturally to Emily because she enjoys the process of designing something and seeing that design come to life.

“I’m most excited to be part of a project and see that building be completed in real life,” Emily said. “Before studying architecture, I didn’t realize how big of an affect a building can have on a community and I look forward to being able to create that effect positively.”

Emily completed her Woodworking Technician Diploma in 2017 and is also a recipient of OFNTSC’s 2019 Student Scholarship Awards. She is now the president of the Architecture Club at her school.

Her skills and interest in woodworking transferred perfectly into the field of Architecture and she loves the career path she has chosen.

Emily believes that First Nations youth should pursue technical careers because there are “many transferrable skills such as analytical thinking, problem solving, attention to detail, communication, and computer skills.”

“A common misconception about the technical field is that you only need technical skills,” Emily said. “It’s important to be able to communicate your technical skills in a way that can be understood by clients, or someone who doesn’t know anything about the field.”

Emily looks forward to one day giving back to her community and hopes that other youth will choose to pursue a career in architecture technology, or a related field. “I hope, in the future, to be able to make an impact in the First Nations communities with my innovative ideas and passion for sustainability,” Emily said.

“I also hope to be able to encourage other First Nations people, especially women, to study science and technology related fields, and to utilize their knowledge to help our communities.”



# Mining

Mining is all about mineral extraction. The basics of mining include finding, extracting, and preparing minerals, metals and coal. These products are used by manufacturing industries. Miners also supervise the construction of underground mine operations and create ways to transport the extracted minerals to processing plants. The engineering side involves finding new and innovative ways to access these materials and overcome difficult obstacles.

## SKILLS & INTERESTS:

- Math
- Technology
- Safety
- Engineering Ability
- Planning
- Problem Solving
- Environment
- Sustainability

## SALARY RANGE:

\$50,000 - \$200,000+ (\$80,000 Average)

## CAREER OPPORTUNITIES:

- Driller/Blaster
- Environmental Technician
- Geologist
- Heavy Equipment Operator
- Engineer
- Heavy Equipment Mechanic
- Surveyor
- Electrician
- Bulk Fuel Handlers

## HELPFUL HIGH SCHOOL COURSES:

Science, English, Math, Technology, Construction, Design

## COLLEGE/UNIVERSITY PROGRAMS:

- Mining Engineering
- Mining Engineering Technician/Technology (2year/3year)
- Geology
- Underground Common-core Course (1-month)

“Whenever an opportunity comes, just take it.”

**AGE:** 26

## COMMUNITY:

Chippewa of the Thames

## OCCUPATION:

Water and Wastewater Intern

## EMPLOYER:

Ontario First Nation Technical Services Corporation

## EDUCATION:

3-year mining engineering technology advance diploma, underground common core for mining and mining plants.

## ROLE MODEL: DEAN DEBASSIGE

As a child, Dean always wanted to “work with really big equipment and blow stuff up.”

Naturally, mining was the perfect fit!

However, what Dean didn't expect to find when he chose to work in the mines was a community of people who are extremely hardworking, funny, and passionate about helping society.

“My favorite part of the job was working with the older people in the mines who have been there for a long time,” said Dean. “They have a lot of interesting stories and they're some of the funniest people you'll ever talk to. I think that makes it worthwhile, just the history of mining through their eyes.”

Dean also saw the benefit he was bringing back to his community, and First Nations people in general. “I think First Nations youth should pursue technical careers because you bring a lot of respect back to your community,” Dean said. “You show that Indigenous people can work really hard and accomplish big things. It will help our youth in the long run and in their futures.”

On sharing some advice for students attending school Dean emphasized the importance of going to class and studying something that you love. “Showing up to class is half the battle... attendance will bring you a long way in school.”



# Science

Science is about understanding the truths and facts of our natural laws. This is such a large area that it has been split into many different professions in order to understand it all. From physics to studying the human body, science is the backbone of human civilization and the fuel for all trades and careers.

## SKILLS & INTERESTS:

- Math
- Knowledge
- Health
- Space
- How everything works

## SALARY RANGE:

\$46,000 – \$140,000+  
(Average of \$87,000)

## CAREER OPPORTUNITIES:

- Psychologist
- Archaeologist
- Environmental Science
- Doctor
- Biochemist
- Nurse
- Forensic
- X-Ray Technician

## HELPFUL HIGH SCHOOL COURSES:

Science, Math, Health, English, History

## COLLEGE/UNIVERSITY PROGRAMS:

- Chemistry
- Engineering
- Pre-Med (Bachelors Degree)
- Pre-Health Sciences
- Medical Radiation

**“I want to be able to give back to my community.”**



**AGE:** 22

### COMMUNITY:

Six Nations of the Grand River

### SCHOOL:

McMaster University

### PROGRAM:

Medical Radiation Science

## ROLE MODEL: VANESSA SMITH

As a young woman from Six Nations who always had a fondness for math and science, Vanessa knew early on that she wanted to work in a health-related field. Though currently in her first year of the Medical Radiation Science Program at McMaster University, it wasn't a straightforward path to get there.

“I did my first year of post-secondary at Six Nations Polytechnic in the one-year consortium program,” Vanessa said. “After this I applied at McMaster for Medical Radiation Science, but I didn't get in, so I switched into Indigenous studies. In the Indigenous studies program, I completed my 3rd year before I transferred over to Medical Radiation Science, which is a 4-year program.”

Vanessa demonstrates the kind of resilience and determination needed to achieve your dreams, and proves that even though there may be setbacks, giving up is never an option. Now that she's in her dream program, Vanessa values every moment – good or bad.

“The best part about being in a health/science program is being able to implement Indigenous knowledge into the research I am doing,” said Vanessa. “And after I [graduate], I hope to be able to use my knowledge to benefit Indigenous communities.”

Giving back to her community is extremely important to Vanessa and she encourages other Indigenous youth to do the same! “With a technical career, there will be so many opportunities for First Nations students to work along [with] many First Nations communities to help so many things that most First Nations lack, such as adequate housing and fresh drinking water.”

Vanessa's advice to students considering a post-secondary education is to “make sure you do your research and make sure the school you pick is some place you will enjoy.”



# Trades

**WELDING** is a fabrication or sculptural process that joins materials, usually metals or thermoplastics, by causing coalescence. Welding has been called the best kept secret in career planning. The fact is welding is a critical skill that will always be in demand. From the beginning of civilization, we have relied on the skills of welders to enrich our lives.

## WELDING SKILLS/INTERESTS:

- Problem Solving
- Endurance
- Interpersonal
- Hand and Eye Coordination
- Attention to detail
- Ability to work in extremely hot or cold conditions
- Listening
- Logic

## WELDING APPROXIMATE EARNINGS:

- Welding Apprentice = \$25,000-\$37,000
- Welder (I, II, III) = \$26,000-\$61,000
- Welding Inspector = \$57,000-\$84,000
- Senior Welding Engineer = \$80,000-\$107,000

## HELPFUL HIGH SCHOOL COURSES:

Math, Science, Geometry, Physics, English

## CAREER OPPORTUNITIES:

Welder, Welding Engineer, Welding Technician, Structural Iron Worker, Sheet Metal Worker, Underwater Welder, Welding Educator, Welding Inspector, Pipefitter, Boilermaker, Machine Operators, Business Owner, Robotics Technician, Metallurgist, Researcher

**"Set a goal  
and never ever  
give up."**

**AGE:** 29

### COMMUNITY:

Six Nations of the Grand River

### OCCUPATION:

Welder Fitter

### EMPLOYER:

Fowler Metal Industries

### SCHOOL:

Six Nations Polytechnic

### PROGRAM:

We Are Welders

## ROLE MODEL: ASHLEY MONTOUR

After having two children, Ashley knew that she wanted to provide for them, and be a good role model as they grew up. "It's rewarding having my kids see me as a role model for them," said Ashley. "I have two sets of eyes on me at all times so what I do is what they'll do."

When she saw the "We Are Welders" program being advertised at Six Nations Polytechnic in Brantford, she decided to give it a try. Little did she know, she was about to embark on a career that she not only loved, but found extremely rewarding as well.

One of the things Ashley loves most about being a Welder are the opportunities to learn and grow. "My favourite part of my job is probably working with other people, gaining new knowledge, [and] anything that has to do with learning."

"I think that First Nations youth should pursue a technical career or trade because it's more hands on," said Ashley. "It's rewarding. If you start right out of high school then you'll never know where you'll end up by the time you're 40 or 50."

And while Ashley is employed full-time now, it was not an easy road to get there. She initially failed the Certified Welding Bureau test three times, but finally on the fourth test, she passed with flying colours.

"Never ever give up," is something Ashley tells herself and her children frequently.

Ashley's message to other First Nation youth is to "Find something you're passionate about. You have to have the love for it in order to love it. So, find something you're very passionate about. After that it's smooth sailing."





# Water and Wastewater

Water and wastewater is one of the most important jobs available. An operator can recognize pathogens and also know what the effect is on drinking water. Safe drinking water is required everywhere and has many opportunities through every community.

## SKILLS & INTERESTS:

- Public Health
- Environmental Concern
- Work Ethic
- Water rights

## SALARY RANGE:

\$50,000 - \$150,000

## CAREER OPPORTUNITIES:

- Water and Wastewater Operator
- Environmental Technician
- Lab Technician
- Scada Operator
- Water Quality Technician
- Water Compliance Officer

## HELPFUL HIGH SCHOOL

### COURSES:

Math, Science, English, Chemistry

## COLLEGE/UNIVERSITY

### PROGRAMS:

- Water Quality Technician
- Operator in Training (Entry-Level Course for water Operators)
- Water Quality Analyst

“Don’t give up. You will hit many bumps in the road, but in the end it’s all worth the pain and failures. Keep going.”

**AGE:** 25

### COMMUNITY:

Whitefish River First Nation

### OCCUPATION:

Water Quality Analyst

### EMPLOYER:

Whitefish River First Nation  
Water Treatment Plant

### EDUCATION:

Water Quality Analyst License

## ROLE MODEL: AMY WABOOSE

Growing up in Whitefish River First Nation, Amy was always surrounded by water and enjoyed spending time outside. Naturally she found her way to a career working with water.

As a Water Quality Analyst, Amy’s job is to ensure that her community’s water supply is of the highest possible quality. On being asked what is the most rewarding part of her job, Amy said, “Definitely just being a part of ensuring that my community doesn’t have to think twice about having safe, clean drinking water.”

“First Nations people are and will always have a connection to the land and water,” said Amy. “[We] will understand both aspects [of] traditional and Western science of the water and land.”

Amy’s connection to the earth and her people are a large driving force in her life, and though she’s at an amazing place in her career right now, she admits that it wasn’t easy to get there. “I myself have had many failures where I wanted to quit, but that was all the more motivation not to,” said Amy. “I needed to be a role model for my son, [to] not give up, keep on keeping on.”

Amy knows the value of hard work and has experienced the benefits of pushing herself to the limits. “My advice to the students who are considering school, [is to] make the first initial step,” said Amy. “Once you take the first step, everything flows for you after... You will flourish in making the first step, I promise.”





# Careers at-a-Glance

CAREER	INDUSTRY	SALARY RANGE	RELEVANT SKILLS	POST-SECONDARY PROGRAMS	COMPLETION TIME
Infrastructure Specialist	Housing	\$50,000 – 110,000 +	Design, Math, Problem Solving	Civil Engineering Technology	3 Years
Housing Inspector	Housing	\$30,000 – 150,000 +	Design, Problem Solving, Writing	Construction or Civil Engineering Technician Programs	2-3 Years
Architect	Housing	\$24,000 – 177,000 +	Computer Literacy, Design, Art, Computer Literacy	Architecture Technology, Bachelor of Architectural Studies	3 and 4 years respectively
Civil Engineer	Engineering	\$30,000 – 159,000 +	Math, Science, Design, Computer Literacy, Problem Solving	Civil Engineering	4 Years
Mechanical Engineer	Engineering	\$30,000 – 151,000 +	Math, Science, Design, Computer Literacy, Problem Solving	Mechanical Engineering	4 Years
Mining Engineer	Engineering	\$30,000 – 195,000 +	Math, Science, Design, Computer Literacy, Problem Solving	Mining Engineering	4 Years
Environmental Monitor	Environment	\$15 /hr – 35 /hr+	Interest in wildlife and Preservation, Writing	Environmental Studies	4 Years
Environmental Scientist	Environment	\$28,000 – 110,000 +	Chemistry, Preservation, Problem Solving	Environmental Technician	2 Years
Aquatic and Wildlife Technician	Environment	\$27,000 – 130,000 +	Interest in wildlife and Preservation, Writing	Fish and Wildlife Conservation Technician	2 Years
Firefighter	Fire & Safety	\$28,000 – 130,000 +	Physical Fitness, Confidence, Ability to work under pressure	Fire Fighter Pre-Service Education and Training	12-months
Water Treatment Plant Operator	Water & Wastewater	\$15 – 48 /hr+	Desire to Protect Public Health, Thorough, Record Keeping	Operator in Training Exam, Entry-Level course for Water Operators	Apprenticeship after OIT for 1 Year
Water/Wastewater Mechanic	Water & Wastewater	\$30,000 – 70,000 +	Problem Solving, Excellent Practical Skills	On the Job Training	Start Work out of Highschool
Public Works Manager	Operations & Maintenance	\$28,000 – 174,000 +	Communication Skills, Understanding of Budgeting, Strong Leadership	Civil Engineering Technology	3 Years
Emergency Planner	Emergency Planning	\$28,000 – 130,000 +	Critical Thinking and Decision Making, Communication	Certified Emergency Manager Exam (CEM)	Study for Exam out of Highschool
Welder Fitter	Trades	\$15 – 49 /hr+	Ability to read and interpret designs, Excellent Practical Skills	Welding and Fabrication Technician	2 Years
Drilling and Blasting Technician	Mining	\$33,000 – 60,000 +	Calm Hands, Lift Heavy Objects, work in Confined Spaces, Math and Analytical Skills	Mining Engineering Technician, Mining Engineering Technology	2-3 Years
Geologist	Mining	\$33,000 – 136,000 +	Design, Math, Problem Solving, Writing	Geology - Physics, Geoarchaeology,	3-4 years
Heavy Equipment Operator	Trades	\$15 – 56 /hr+	Teamwork, Attention to Detail, Understand Designs	Heavy Equipment Technician	2 years
General Trades	Trades	\$14 – \$26 /hr+	Stamina, Critical Reasoning Skills, Attention to Detail, Willingness to Learn from Peers	Construction, Electrical, Machining,	1 year
X-ray Technician	Health Sciences	\$60,000 – \$90,000 +	Math, Science, Computer Literacy, Analytical, Chemistry	Medical Radiation Technology	3 years
Lab technician	Health Sciences	\$15 /hr – 48 /hr+	Math, Science, Computer Literacy, Analytical, Chemistry	Medical Laboratory Technician	1 year
Surveyor	Trades	\$15 – 44 /hr+	Math, Attention to Detail, Computer Literacy, Problem Solving	Geomatics	2 years

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**TECHNICAL YOUTH  
CAREER OUTREACH  
PROJECT**



**ONTARIO FIRST NATIONS  
TECHNICAL SERVICES  
CORPORATION**