Technology Education Assessment

March–June 2019

Manitoba First Nations Education Resource Centre Inc.

For information on *Technology Education Assessment* contact MFNERC at 204.594.1290 or email info@mfnerc.com

Acknowledgements

Written by Cyrus Gervais, BA, BEd; Presented to Susy Komishin, MFNERC, Partnerships Project Lead

The information provided in this report was collected from communities throughout Manitoba on the traditional territories of the Anishinaabe, Cree, Ojibwe-Cree, Dakota, and Dene Peoples, as well as in the homeland of the Métis Nation.

Thank you to all who made this report possible by participating in surveys, engaging in conversations, and sharing your stories. Those participants include principals, teachers, parents, Elders, and students from the following communities:

First Nation Schools

Bunibonibee Cree Nation	Manto Sipi Cree Nation	Sandy Bay Ojibway First Nation
Chemawawin Cree Nation	Mathias Colomb First Nation	Shamattawa First Nation
Cross Lake First Nation	Nisichawayasihk Cree Nation	Sioux Valley Dakota Nation
Ebb and Flow First Nation	Opaskwayak Cree Nation	St. Theresa Point First Nation
Fisher River Cree Nation	Pinaymootang First Nation	Tataskweyak Cree Nation
Garden Hill First Nation	Red Sucker Lake First Nation	Wasagamack First Nation
Lake Manitoba First Nation	Sagkeeng First Nation	Waywayseecappo First Nation

Provincial Programs

Crocus Plains Regional Secondary School

Brandon School Division

Brandon, Manitoba

Lord Selkirk Comp. Reg. Secondary School

Lord Selkirk School Division

Selkirk, Manitoba

Major Pratt School

Park West School Division

Russell, Manitoba

Red River Valley Technical Area

Borderland School Division

Division Scolaire Franco-Manitobaine

Garden Valley School Division

Red River Valley School Division

Western School Division

Sisler High School – Cyber Academy
Winnipeg School Division
Winnipeg, Manitoba

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Executive Summary

The purpose of this report is to assess the existing technology education programming available to Indigenous students living in First Nations in Manitoba. Technology education encompasses industrial arts, human ecology, applied business education, and technical vocational programming. During the collection of information, this report notes that there are many industrial arts, human ecology, and applied business education courses available in First Nations. However, there are very few technical vocational programs available to the students living on-reserve. This report hopes to allow for the creation of access to technical vocational programs and for the improvement of existing technology education programs in the future by outlining three recommendations.

To create access to technical vocational programs, this report outlines four delivery models that are current being used in the province. The four delivery models are the regional school model, the online program model, the partnership model, and the consortium model. The members in each community visited were also asked which programs they would like to see in their schools. The most requested programs in First Nations are carpentry, electrical, and automotive technologies as well as child care and health care programs.

The recommendations for improving existing technology education programs in First Nations are three-fold. First, this report calls for an increase in funding allocations per student to cover the cost of shipping heavy tools and materials into First Nations. Second, this report notes the requests for aid in the establishment of Professional Learning Networks for teachers working in isolated communities. Third, this report also notes the request for more accessible opportunities for training of technology education teachers.

Introduction

This report will assess the need for access to technical vocational programming in Manitoba First Nations high schools. To understand the need for these programs, this report will divide the assessment into four parts. The first part of this report will identify existing programs in First Nations with the levels of support from administration, a brief overview of each program, and a breakdown of the top five most requested programs in that First Nation. The second part of the report will provide general recommendations on how to improve the programs currently being offered in First Nations. The third part of this report will describe the models being used throughout the province of Manitoba to deliver existing technical vocational programs. The fourth part of this report will identify the five priority technical vocational programs to be considered as this project moves forward.

Methods of Research

Collecting the information necessary for this report required multiple forms of data collection. The primary method used for the collection of data in this report was the compilation of surveys completed by principals, teachers, and students attending and working in First Nations schools throughout Manitoba. The secondary method of data collection was notes taken during conversations with community members (aside from the surveys) while visiting the school. The final method of data collection was the tours of the technology education facilities that exist in First Nations high schools.

First, the surveys used for this report were created to consider the roles of specific stakeholders in the schools. For example, questions regarding the ordering of equipment and materials were directed toward teachers, not students or principals. Therefore, the creation of three surveys was vital to ensure that there was accurate and non-redundant information being provided. Blank copies of the three surveys used can be found in Appendices at the end of this report.

In a typical school visit, the first survey to be completed was the Principal Questionnaire. The Principal Questionnaire was designed to ask the bigger questions about the school and the community at large. The questions were more open-ended and would allow the principal to share hopes and desires for their school, community, and the future of education in First Nations. The questions in the Principal Questionnaire would often lend insight into how supportive the administration is towards technology education programs, both existing and future.

During the visit, the second survey completed was typically the Teacher Questionnaire. The Teacher Questionnaire was designed to allow teachers to share information about their program. The Teacher Questionnaire also identified which tools needed updating or replacing. The number of tools listed for update or replacement offers some insight into the level of support being provided for the program by the school and the education authority.

Also, by understanding the tools and processes currently being used to teach in the classroom, there is a better chance of assessing the levels of learning taking place for the students. In the Teacher Questionnaire, teachers were also asked about procedures for ordering materials and equipment. They were also asked about their qualifications, their willingness to complete further training, and their vision for programs.

The final surveys completed during any visits were the General School Surveys. The purpose of the General School Survey was three-fold. First, the General School Survey was intended to allow students and other community members an opportunity to give feedback on the programs currently being offered in their school. The second purpose of the General School Survey was to see if people in the community thought there was a need for improved technology education programming. The third purpose was to identify the five priority areas for each First Nation.

The conversations that took place during the collection of the surveys served to further inform this written report. The comments made about items not covered in the surveys were taken as notes in the margins of the surveys or in a notebook. Often the comments would add insight into the history of the programs, the school, and the community. Understanding the history of a place and existing programming helps to determine how to better support technical vocational programming in the future.

Finally, the school visits and tours served as a means of confirming the information brought forth by the surveys and conversations. Often, during a conversation, the teacher or principal would physically demonstrate what they were talking about: often demonstrating a proud achievement or project completed in the classroom. These gestures and demonstrations would not have been possible without being physically present in their facility.

There would be no report if any of the above-mentioned methods of information collected were missing. Collecting surveys, engaging in meaningful conversations, and being physically present in the technology education facilities provided information and insight into existing programs in First Nations high schools in Manitoba. This research ultimately helped identify five priority technical vocational areas for Manitoba First Nations.

Assessment of Programs (First Nations-Operated)

The assessment for each school is based on surveys and conversations with principals, teachers, students, and community members. The following section will outline those interactions and how they inform the report. Most of the information provided is pulled from the General School Survey, the Teacher Questionnaires, and the Principal Questionnaires. Each assessment identifies how principals support the current programming. These assessments also identify how teachers are supported in the classroom regarding tools, machinery, and consumable items. The support provided to current programming in First Nations schools will help the Manitoba First Nations Education Resource Centre decide how best to support these programs in the future. Each assessment also identifies the top five programs requested in each community. Taking note of the desires of each community will help engage both staff and students in making technology education programs accessible to First Nations in Manitoba.

Bunibonibee Cree Nation

1972 Memorial School, Gr. 7-12
Oxford House, PO Box 2655
R0B 1C0

Technology Education Programs available at 1972 Memorial School:

1. Industrial Arts – Woodworking Technology

2. Human Ecology – Food & Nutrition, Textile Arts & Design, Family Studies

3. Basic Computer Classes

Summary of Principal Questionnaire:

The administration at 1972 Memorial School supports the technology education programming. The principal thinks that there needs to be improved advertisement for these programs. He also believes that there needs to be improved communication between the schools, the governments, and other communities to ensure that all programs are made available to all students. The principal also notes that there are many companies in Oxford House that may be able to support students in a cooperative work placement.

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

The woodworking classroom is large. This is a typical high school woodworking shop. All the machines are in working order, finished examples of projects completed in this room are fixed to the walls, and unfinished projects are piled on tabletops. The teacher has identified a need for an improved storage system for all unfinished projects and the woodpile. All the machinery is in good condition and is well maintained. Students learn to use most of the machines in the shop. The machines not being used are those upon which the teacher fears students may get injured. Typical projects include a key rack, a small shelf, a box, and other similar items.

The teacher in this classroom has not had teacher training. Last year, the teacher was the education assistant in the woodworking classroom, but the school hired him to teach the program after the teacher did not return in September. The teacher welcomes training to ensure that students are receiving the best education in his classroom. The teacher would like to learn how to teach students to be safe and responsible while using the equipment that he perceives to be more dangerous.

2. Human Ecology

The human ecology classroom is housed in a large room. Hosting two kitchens and approximately ten sewing machines, the classroom is a sufficient size for about 20 students at one time. Like many of the home economics classrooms in First Nations, this is a very spacious classroom. There are two small kitchens in the classroom. The teacher notes that the layout of this classroom could be improved. She believes that moving the kitchens into the centre of the open space and converting the existing kitchens into storage space would improve sightlines during lessons. This classroom hosts the community Elders on occasion to help fortify the cultural identity of the students.

Typical recipes include bannock and stews. After class, any leftover food is shared with other students and teachers in the school. Some food may also be taken home to family and friends. Sewing projects include aprons and small beadwork pendants.

The teacher is a certified human ecology teacher. She noted that she would be willing to take further training should the opportunity be made available to her. She teaches from the Manitoba Education and Training Curriculum Guides for Foods & Nutrition. She expressed that she often feels isolated from other teachers who are teaching this subject in other parts of the province. She also expressed that she would like to have more opportunities to get to the other teachers and share ideas in a professional development setting.

3. Basic Computer Classes

The computer classroom is also very large. The classroom has approximately 25 computers. The students learn Internet research skills, essay writing, and basic computer coding.

The teacher was previously an education assistant and computer technician for the school. He was asked to take the teaching position when the school was having difficulty finding a teacher for the program. He is willing to further his training in teacher education. His vision for his class is to offer more coding courses because he believes that is the future of computer information technology.

<u>Priority Technical Vocational Programs identified in Bunibonibee Cree Nation:</u>

1. Automotive Technology

2. Carpentry

3. Culinary Arts

4. Resource Management/Environmental Design

5. Entrepreneurship/Business Management

Cross Lake First Nation

Mikisew High School, Gr. 7-12
Cross Lake, MB, PO Box 128
R0B 0J0

Technology Education Programs available at Mikisew High School:

1. Industrial Arts – Woodworking Technology (transitioning to Construction Technology)

2. Basic Computer Classes

Summary of Principal Questionnaire:

The principal in this school is very supportive of the technology education programs at Mikisew High School. The administration requests that teachers identify the need for new or alternative programming in the school that will benefit all students. If a teacher should identify a need, they should notify the principal, so they are able to work towards a solution together.

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

A Red Seal certified carpenter teaches the industrial arts classes. Projects are decided based on the needs of the community. Typically, the needs are identified by the Cross Lake Housing Authority and shared with the teacher. During the school visit, the class had been asked to make recycling bins that would be used in the community. The teacher has noticed a reduction in vandalism in the community since partnerships between his program and the Cross Lake Housing Authority began. In this classroom, students are learning the amount of work and dedication that goes into construction processes. The teacher remarks that the current size of the classroom is too small to build anything larger than recycling bins. The vision for the program is to build sheds for the community. Cross Lake Education Authority is currently in the process of building a new shop facility next door because they have seen the benefits of the woodworking course in the community and would like to support the program.

2. Basic Computer Classes

With the help of school administration, the teacher started this program after she noticed a need for computer skills in the community. Coursework includes keyboarding, resume writing, essay writing, and some basic coding. Recently, the classroom acquired a 3D printer, but it was not set up at the time of the school visit. The teacher notes that the Internet connectivity and speed are both issues that impact the delivery of lessons.

Priority Technical Vocational Programs identified in Cross Lake Cree Nation:

1. Career Development: Life/Work Courses
2. Family Studies
3. Construction Technology
4. Mining Engineering Technology
5. Electronics/Electrical Technology

Garden Hill First Nation

Garden Hill First Nation High School, Gr. 7-12
Garden Hill, MB, General Delivery
R0B 0T0

Technology Education Programs available at Garden Hill First Nation High School:

No technology education programs available according to community members at the airport. However, this is not confirmed due to a power outage in the community of the day of the visit.

Community Members Interviewed:

Community members offered that the school needs attention and care. They believe that technology education should be a priority, especially those skills that can be taken back to the community once they decide to retire from skilled trade work forces.

Priority Technical Vocational Programs identified in Garden Hill First Nation:

1. Automotive Technology
2. Carpentry/Construction Technology
3. Culinary Arts
4. Electrical/Electronic Technology
5. Aircraft Maintenance Technology

Manto Sipi Cree Nation

Amos Okemow Memorial School, Gr. 7-12
God's River, MB, General Delivery
R0B 0N0

Technology Education Programs available at Amos Okemow Memorial School:

1. Basic Computer Skills

Summary of Principal Questionnaire:

The administration is supportive of programs at the school. They believe that the attendance issues in the high school need to be resolved before they can consider offering more programs. Another issue identified in the school is the high staff turn around. Due to low attendance and high staff turn around, the principal states that worthwhile technology education programs might not be feasible in God's River until these issues are addressed. However, he does believe that access to technology education programs could help students develop skills for future careers.

Summary of Teacher Questionnaires:

1. Basic Computer Classes

The computer lab is located in a detached building or pod to the east of the main building. This pod also houses the library. There are approximately 15 computers in this space. Students have access to a 3D creation software called Blender: a program on which the teachers in the school have had no training. Additional programs to be installed on the computers could include word processors, introduction to coding programs, and photo editing software.

Having a student intern in the computer lab is a great step toward building teacher confidence in using the computer lab. A next step for this space should be to encourage the student intern to promote the computer lab and help teachers build computer use into their lesson planning. Although building towards the daily use of computers in lessons may take time, it will help to prepare students for their futures in a technological world.

Priority Technical Vocational Programs identified in Manto Sipi Cree Nation:

1. Carpentry/Construction Technology
2. Power Mechanics/Automotive Technology
3. Food & Nutrition
4. Career Development: Life/Work Courses
5. Personal Finance

Mathias Colomb First Nation

Sakastew School, Gr. N-12
Pukatawagan, MB, PO Box 319
R0B 1G0

Technology Education Programs available at Sakastew School:

1. Human Ecology – Foods & Nutrition

Summary of Principal Questionnaire:

Administration is fairly supportive of technology education programming. Administration notes that there is very little initiative to encourage the students to think about their futures outside of Pukatawagan. The administration believes that students might be more interested in their education if they could see the value of technology education programs. The administration wishes there were more opportunities for the students to leave the community to attend programs that are not offered in the community. Though there are five technology education facilities in the school, there are no teachers to run the programs. The five facilities are as follows: food and nutrition, woodworking, automotive technology/metalworking, sewing and cosmetology, and graphic arts.

Summary of Teacher Questionnaires:

1. Human Ecology – Foods & Nutrition

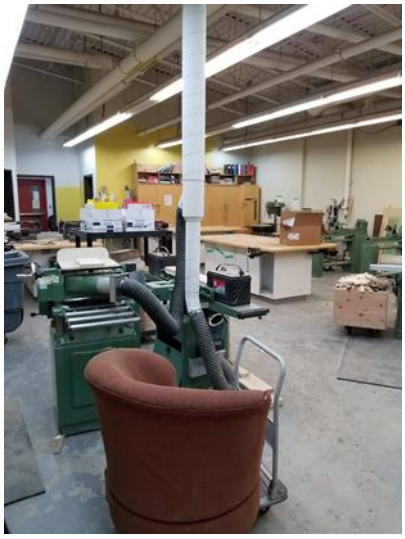
The foods and nutrition classroom is the last running technology education program in the school. The classroom is fairly small and hosts two fully stocked kitchens. Ingredients arrive via train from The Pas. The remote nature of the community makes it hard to provide students with healthy, fresh food for cooking.

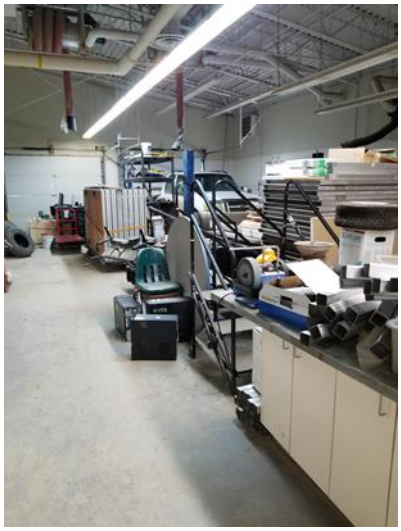
Students learn how to make bannock, soups, and stews. This program (like many other programs in this school) has low attendance. Students who have taken this course were not impressed with the foods and nutrition class because they were prompted to take too many notes during class time. The teacher in this classroom has had no teacher training. However, she is willing to attend training if it is offered in Pukatawagan.

2. Closed Programs

Four programs in the school are closed. All the machines are in good condition, but there are no teachers to run the programs. The following is a description of how these classrooms are currently being used:

- The woodworking classroom is being used as a workshop by the maintenance department.
- The automotive technology/metalworking classroom is being used as a storage room for building supplies.
- The graphic arts classroom is being used for storage space.
- The sewing and cosmetology classroom is being used as a regular classroom with tools and machinery being stored in the graphic arts room.





Priority Technical Vocational Programs identified in Mathias Colomb First Nation:

1. Heavy Duty Equipment
2. Carpentry/Construction Technology
3. Child Care
4. Automotive/Power Mechanic Technology
5. Metalworking Technology

Nisichawayasihk Cree Nation

Nisichawayasihk Neyo Ohtinwak Collegiate, Gr. 9-12
1A School Road, Nelson House, MB
R0B 1A0

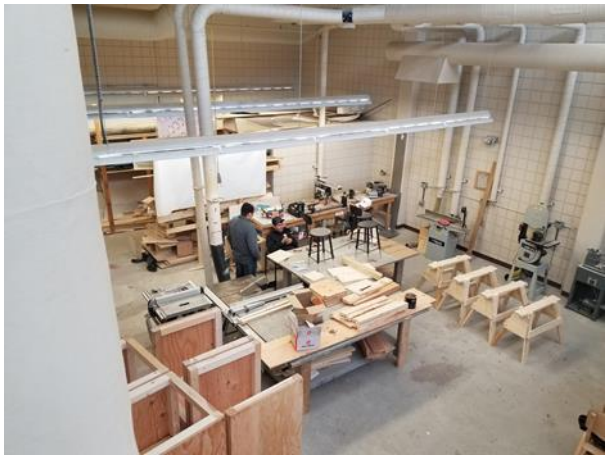
Technology Education Programs available at Neyo Ohtinwak Collegiate:

1. Industrial Arts – Woodworking Technology

2. Industrial Arts – Metalworking Technology

Summary of Principal Questionnaire:

The administration at Neyo Ohtinwak Collegiate is supportive of industrial arts programs. Putting trust in the teacher, the principal does not micromanage the program. The industrial arts programs are currently being run off-site at Atoskiwin Training & Employment Centre (ATEC). To get to class, students walk five minutes. The classroom is a brand new technical vocational carpentry/welding classroom that is not being used by ATEC. As the program at ATEC continues to grow, the school is unsure how much longer they will be welcome to continue using the ATEC classrooms. Unfortunately, the technical vocational programs are not offered to high school students.

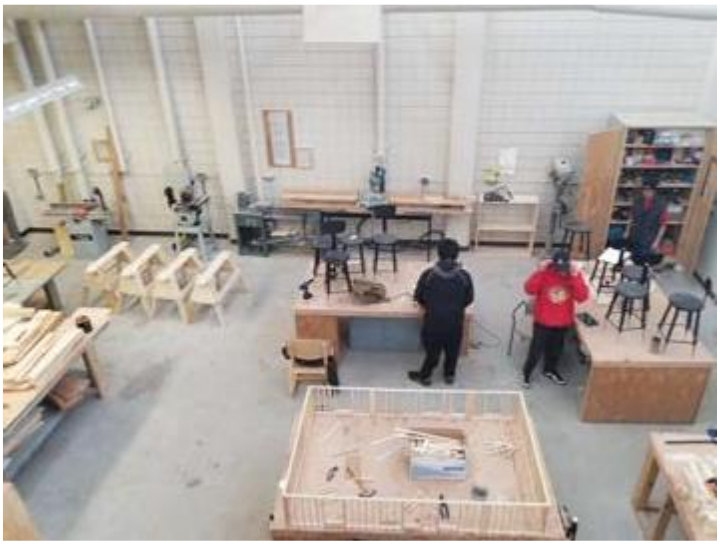


Summary of Teacher Questionnaires:

1. Industrial Arts – Construction Technology

Started in 2015, the woodworking technology program is slowly growing. The growth of the program is due, in large part, to the teacher forging relationships with community authorities. Students are learning basic design principles and carpentry skills by building shoe racks, doghouses, and sheds for community members. The final project this year is a large recycling shed. The shed is paid for by grants received by a local recycling company and some more funds being provided by the Housing Authority. To improve the student learning in the program, the teacher would like to complete teacher training. The teacher is Red Seal certified in carpentry. The teacher also notes that having a designated shop space

belonging to the school (or a clearly defined contract/agreement with ATEC) would help the program establish security for years to come.



2. Industrial Arts – Metalworking Technology

Metalworking technology is currently unavailable to students due to safety concerns about sharing the space with woodworking classes. Wood dust is a highly flammable material, and the sparks from the welding booths pose a threat to health and safety. Last year, when the course was available, the students were learning how to weld and shape metal and fix small engines. The small engines fixed were mostly lawnmowers belonging to community members. The woodworking teacher also taught this course.

Priority Technical Vocational Programs identified in Nisichawayasihk Cree Nation:

1. Carpentry
2. Plumbing & Pipe Trades
3. Culinary Arts
4. Electronics/Electrical Technology
5. Power Mechanics/Automotive Technology

Opaskwayak Cree Nation

Oscar Lathlin Collegiate, Gr. 7-12
Opaskwayak, MB, PO Box 10400
R0B 2J0

Technology Education Programs available at Oscar Lathlin Collegiate:

1. Industrial Arts – Woodworking Technology

2. Human Ecology – Food & Nutrition, Textile Arts & Design, Family Studies

3. Basic Computer Classes – Word Processing, Photo Editing

Summary of Principal Questionnaire:

The administration at Oscar Lathlin Collegiate is very supportive of all programming in the school and community. Understanding that the school cannot offer every program, the principal encourages students to participate in programs offered by the University College of the North (UCN), Frontier School Division, and Kelsey School Division. Oscar Lathlin Collegiate also opens its door to students from those school divisions and other First Nations who would like to take programs not offered in their school. Students who attend Oscar Lathlin Collegiate often come from Pukatawagan and Moose Lake.

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

The woodworking technology shop is a fairly large facility at the back of the school. Many of the tools in this workshop need repairs, but there is no funding to replace them. It is also important to note that General (the company that built the machines) is out of business. Students in this classroom are building shelving units and tables to take home.

A Red Seal certified carpenter is teaching the woodworking technology class. He uses his experience gained in the industry to impart knowledge. The teacher has noticed that the dust collection unit outside ices over in the winter and plans to build an enclosure to ensure the shop can remain open during the winter months.

2. Human Ecology

The human ecology programs offered at Oscar Lathlin Collegiate include foods and nutrition, textile arts and design, and family studies. The classroom is a very large space that accommodates the school Elders during the day. Throughout the week, six Elders help the teacher bring cultural aspects into the classroom. The teacher uses basic recipes and sewing techniques to teach students. Typical recipes used include bannock, soups, and stews. All the recipes are made from scratch. Ingredients are bought in from The Pas. The teacher is hoping for new stoves and a projector screen that is visible from the kitchen area. The teacher would like further training on teaching culinary skills and how to get students involved and excited about future prospects in the field of culinary arts.

3. Basic Computer Classes

The computer class is a reasonably sized classroom with approximately 20 computers. All computers are current and up to date. The classroom is tidy. Students learn photo editing using Adobe Photoshop and word processing using Microsoft Office. The teacher is a math teacher who grew up around computers. He has no formal training in teaching computer courses. The teacher is open to training in new areas beyond his knowledge. The teacher would like vinyl cutters and a 3D printer in his classroom to further the experiences of his students.

Priority Technical Vocational Programs identified in Opaskwayak Cree Nation:

1. Aesthetics (Nail, Hair, Skin Technologies)
2. Health Care Assistant
3. Welding Technology
4. Carpentry
5. Child Care

Red Sucker Lake First Nation

Red Sucker Lake School, Gr. N-12
Red Sucker Lake, MB, PO Box 161
R0B 1H0

Technology Education Programs available at Red Sucker Lake School:

Red Sucker Lake School currently does not have any formal technology education programming. However, there is one introductory computer skills course available to the high school students.

Summary of Principal Questionnaire:

The administration at Red Sucker Lake School is indifferent towards technology education programs. The vice-principal notes that attendance is low in the high school. The school also houses early- and middle-years students; therefore, finding funds and teachers willing to take on the responsibility becomes a difficult task.

Summary of Teacher Questionnaires:

1. Introductory Computer Skills

The computer lab doubles as the high school math class. Having observed a need for students to learn computer skills, the math teacher decided that he would incorporate computer skills into his math lessons. After computer skills were incorporated in the math class, other teachers decided to include computers in their courses. The programs used include Microsoft Word, Excel, and PowerPoint. Students also use the Internet to search for information in the creation of essays, resumes, and other assignments. The classroom that houses the computer lab has become a hub for the school. Elders, students, teachers and visitors all meet in the computer lab. The math teacher believes this could be a testament to how improved teaching methods can benefit the community.

Priority Technical Vocational Programs identified in Red Sucker Lake First Nation:

1. Carpentry
2. Baking & Pastry Arts
3. Child Care
4. Electronics/Electrical Technology
5. Heavy Duty Equipment

Sagkeeng First Nation

Sagkeeng Anicinabe High School, Gr. 9-12
Pine Falls, MB, PO Box 1610
R0E 1M0

Technology Education Programs available at Sagkeeng Anicinabe High School:

1. Industrial Arts – Woodworking Technology

2. Human Ecology – Food & Nutrition, Textile Arts & Design, Family Studies

3. Computer Classes – Basic IT, Website Design

Summary of Principal Questionnaire:

The administration at Sagkeeng Anicinabe High School is supportive of the technology education programming offered in the school. The acting principal is especially supportive and hopeful that opportunity for technology education in Sagkeeng continues to grow. The administration believes that if specialized programs were offered in Sagkeeng, they would be able to open up registration to students from other communities that do not have the same programs. There is room near the school for additional learning spaces to be constructed if necessary. The following is a list of possible locations for cooperative education identified by the acting principal:

- Empty restaurant owned by Sagkeeng Council on the corner of Provincial Highway 304 and Northshore Road
- Multiple autobody shops in Pine Falls/Powerview area
- OSIS Lumberyard in Pine Falls

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

In the woodworking facility, students are learning the basics. A typical project for the students in this classroom is a birdhouse. Students learn how to use the following tools: chop/mitre saw, bandsaw, planer, jointer, drill press, air-powered nail gun, etc. The teacher finds that he is limited in his ability to teach due to the lack of equipment in the classroom. He notes that the dust collector system is not installed properly causing health and safety risks when using some of the machinery.

The vision of the teacher in this classroom is to build sheds for interested members of the community as an ongoing fundraiser for the school. Due to the up-front costs of building sheds, the teacher believes that a policy needs to be implemented for reimbursement of funds before he can move forward with this project.

2. Human Ecology

In the home economics classroom, students learn foods and nutrition, sewing, and health. Student learning is guided using the Manitoba Education and Training General Nutrition Curriculum Guide and supplemented by six textbooks as well as a myriad of Internet resources. With one cooking lab and two assignment days per week, the human ecology program at Sagkeeng Anicinabe High School is well structured. Typical projects for high school students in this program are small sewing projects (pillows, aprons, etc.), caring for clothing (machine washing and drying), and healthy food (macaroni and cheese, homemade pizza pops, etc.). Most recipes and project ideas for this program are found online. The teacher ensures that safety is a top priority in the classroom, and she wishes the layout and sightlines in her cooking lab were better. The teacher envisions growth of the program through the promotion of home economics in the early years school via the yearly cultural days program where the community comes together to celebrate culture. It is the

teacher's hope that her program prepares students for future employment in the food industry.

3. Computer Classes – Web Design

In the computer lab, students are learning web design. The skills and processes necessary for web design include word processing, keyboarding, general design principles, and more. The online programs being used in this classroom are Wix.com, Youtube, Google, and various BLOG/VLOG websites. The teacher wishes that the computers were kept up to date because running some of the programs is difficult if the hardware is out-dated. The teacher and students have identified a need for businesses in the community and the surrounding area to benefit from access to improved online promotions (e.g., websites). Though the teacher is willing to take on website building for these businesses as class projects, it is difficult without the proper networking capabilities and slower Internet speeds.

<u>Priority Technical Vocational Programs identified in Sagkeeng First Nation:</u>

1. Automotive Technology
2. Baking & Pastry Arts
3. Cabinet & Furniture Making
4. Welding Technology
5. Carpentry
6. Child Care

Sandy Bay Ojibway First Nation

Isaac Beaulieu Memorial School, Gr. N-12
Marius, MB, PO Box 108
R0H 0T0

Technology Education Programs available at Isaac Beaulieu Memorial School:

1. Industrial Arts – Woodworking Technology

2. Human Ecology – Foods & Nutrition

3. Basic Computer Classes

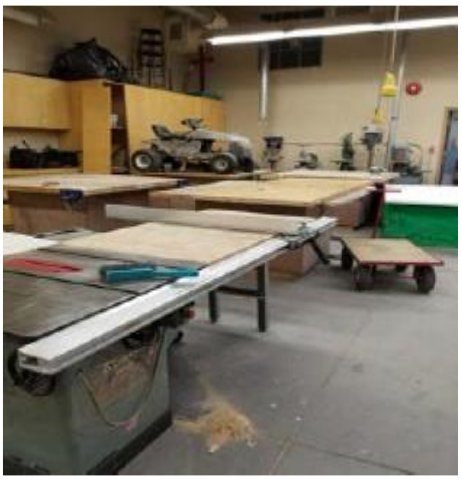
Summary of Principal Questionnaire:

Administration is very supportive of the technology education programs being offered in Isaac Beaulieu Memorial School. The principal started in her position after the school year started. Being new to the position, she is still trying to connect with all the teachers in school and learn more about their subjects and courses. She especially appreciates having a certified industrials arts teacher who is able to continue teaching classes and running successful programs with very little guidance and support.

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking & Metalworking Technology

A certified industrial arts teacher teaches the woodworking and metalworking technology programs. The teacher has built a good working relationship with administration. Due to this relationship, the tools and machinery in the shop are all kept in good working condition. Typical projects in this program are small woodworking items such as shelves or cutting boards. Students also help the teacher repair small engines, such as lawnmowers, brought in by community members.



2. Human Ecology – Foods & Nutrition

The industrial arts teacher also teaches the foods and nutrition courses. Students in this class learn how to prepare and cook nutritious meals. Every few months, the students prepare a feast for community members. Trying to bring cultural aspects into the class, the teacher will often teach students how to clean game brought in by community members who have extra meat after a hunt.

The teacher hopes for a clear consumables budget for both his industrial arts and his foods and nutrition classrooms.

3. Basic Computer Classes

The computer classroom consists of two conjoined classrooms in the basement of Isaac Beaulieu Memorial School. The classroom is large. Projects in this class are based in Microsoft Office. Students learn keyboarding, Word, PowerPoint, and Excel. The previous teacher created all the assignments for these courses. The primary concern of the teacher in this classroom is that he does not feel qualified to teach the subject. He feels that he is limiting student learning. He hopes the school can find a qualified computer teacher so he can return to teaching history courses in the fall.

<u>Priority Technical Vocational Programs identified in Sandy Bay Ojibway</u>

<u>First Nation:</u>

1. Child Care
2. Personal Finance
3. Photography
4. Sound Engineer
5. Electronics/Electrical Technology

Shamattawa First Nation

Kisemattawa Kiskinwahamakew Kamik School, Gr. N-12
100 Trout Creek Road, Shamattawa, MB
R0B 1K0

Technology Education Programs available at Kisemattawa Kiskinwahamakew Kamik School:

1. Industrial Arts – Woodworking Technology, Metalworking Technology

2. Human Ecology – Food & Nutrition, Textile Arts & Design, Family Studies, Hairstyling

Summary of Principal Questionnaire:

This year, there is an acting principal in charge at Kisemattawa Kiskinwakamakew Kamik School. During the school visit, the acting principal was out sick. The teacher in charge was the social sciences teacher. This teacher believes that students should be afforded as many opportunities as possible. He is a very supportive role model who says that graduation numbers in Shamattawa are slowly increasing. The teacher believes that technology education may be the solution to attendance issues at the school because these programs help to engage students that would otherwise feel left out.

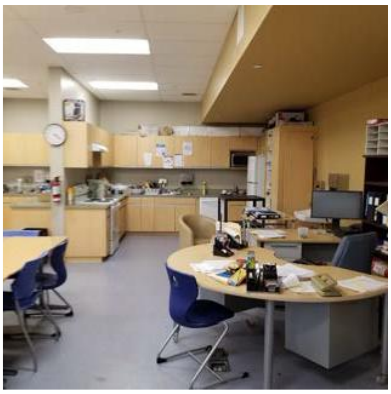
Summary of Teacher Questionnaires:

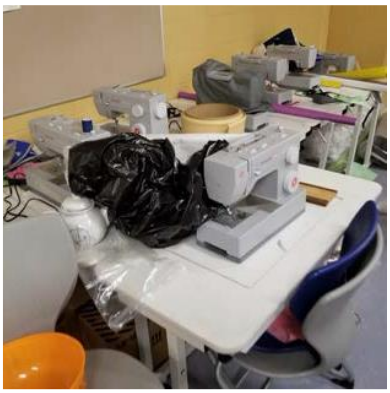
1. Industrial Arts – Woodworking Technology & Metalworking

The woodworking and metalworking classrooms are currently not operating. Both rooms have brand new equipment. Some of the tools in the metalworking classroom are still in their original packaging and have never been set up for use. The woodworking class ran for one year when the school first opened. Both shops are large. The maintenance crew is using the facilities to maintain the school grounds and for storage. The head of the maintenance crew says that the school has had a difficult time hiring and maintaining qualified teachers and staff. He believes this difficulty is, in large part, due to the remote nature of the community.

2. Human Ecology

The human ecology classroom is in a very similar state to the industrial arts facilities. The school has the tools necessary for teaching foods and nutrition, textile arts and design, family studies, and hairstyling. The classroom is fully furnished with brand new equipment set up and ready for classes. Due to the shortage of qualified teachers in Shamattawa, there are no classes currently taking place in the human ecology classroom. The head of the maintenance crew notes that the kitchen spaces are sometimes used when there are special community events or when the breakfast and lunch program staff need more space for cooking meals.





Priority Technical Vocational Programs identified in Shamattawa First Nation:

1. Health Care Assistant
2. Electronics Technology
3. Family Studies
4. Child Care
5. Woodworking Technology

Sioux Valley Dakota Nation

Sioux Valley High School, Gr. 7-12
Griswold, MB, PO Box 99
R0M 0S0

Technology Education Programs available at Sioux Valley High School:

1. Technical Vocational – Interactive Digital Media, Photography, Print Media

2. Human Ecology – Textile Arts & Design, Family Studies

3. Applied Commerce Education – Accounting Essentials

Summary of Principal Questionnaires:

Students interested in technical vocational programming have the option to attend high school programs in Brandon, Manitoba, at Crocus Plains Regional Secondary School. Students who attend these programs are bussed to/from school daily on a 40-minute bus ride.

Priority Technical Vocational Programs identified in Sioux Valley Dakota Nation:

1. Photography

2. Aesthetics

3. Woodworking Technology

4. Jewellery & Metalsmithing

5. Graphic Design

St. Theresa Point First Nation

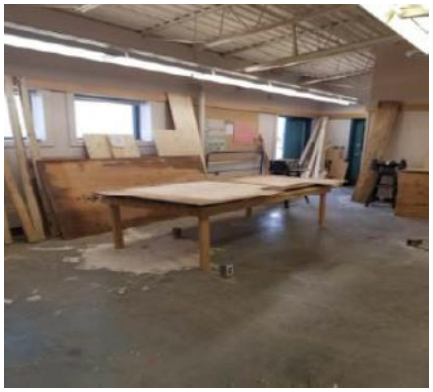
St. Theresa Point High School, Gr. 9-12
St. Theresa Point, MB, PO Box 520
R0B 1J0

Technology Education Programs available at St. Theresa Point High School:

1. Industrial Arts – Woodworking Technology

Summary of Principal Questionnaire:

The administration at St. Theresa Point High School is very supportive of technology education programs. Furthermore, administration understands the need for access to technical vocational programs. The administration works to identify which students are interested in a university education or a technical vocational education. Once these students have been identified, they have the opportunity to attend school at Southeast Collegiate in Winnipeg or in technical vocational programs offered through Frontier School Division. Typically, the school has enough students interested in technical vocational programming to charter a full plane from St. Theresa Point to Cranberry-Portage. Administration would like to see more technical vocational programs in First Nations. At the very least, administration would like to see more formal partnerships with existing programs.



Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

The woodworking area is a smaller shop with an adjacent classroom. The layout of this classroom does not offer good sightlines when students are working because there is a large wall in the middle of the room. With an emphasis on safety and safe work procedures, the students take many notes about the theory of woodworking. There are very few projects built in this classroom.

The teacher is a Red Seal certified carpenter. He has concerns about the facility's ventilation system and does not like students working on the machines. To fix this issue,

the school will need a larger capacity electrical fuse box. Without proper functioning machinery, the woodworking technology program has not been operating fully and therefore is facing some enrolment issues.

Priority Technical Vocational Programs identified in St. Theresa Point First Nation:

1. Baking & Pastry Arts
2. Carpentry
3. Child Care
4. Aesthetics
5. Environmental Design

Tataskweyak Cree Nation

Chief Sam Cook Mahmuwee Education Centre, Gr. N-12
Split Lake, MB, PO Box 100
R0B 1P0

Technology Education Programs available at Chief Sam Cook Mahmuwee Education Centre:

1. Industrial Arts – Woodworking Technology

2. Computer Courses

Summary of Principal Questionnaire:

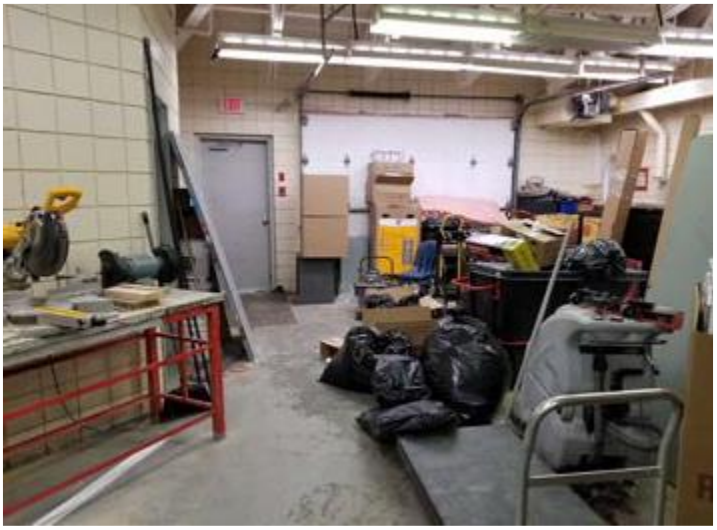
The administration at Chief Sam Cook Mahmuwee Education Centre is spread thin. Having over 700 students in a school designed to support 350 students causes the administration some headaches. However, the principals do their best to ensure that the technology education programs have what they need. With limited funds, this is a difficult task.

Summary of Teacher Questionnaires:

1. Industrial Arts – Woodworking Technology

The woodworking technology shop is tucked behind an adjacent classroom. The small work area and large school population means that not all students registered in the course are able to work on projects. The problem seems amplified by the clutter in the workshop. Maintenance at the school often uses the area near the exterior door to bring supplies into the school. Taking up nearly ¼ of the space in the workshop at the time of visit, there is not much room for more students to use the space during class time. Projects made in this classroom are small. Some examples of projects include bandsaw boxes, cutting boards, and a shelf. The largest and final project is a stool that purposely uses all of the machines available in the workshop. The stool is used as a means of evaluating each student's ability on the machines.

The teacher in this area is a certified industrial arts teacher. He has identified that many of his machines are beginning to fail or breakdown. To the best of his abilities, he is trying to maintain the machines, but he does not have a clear budget for repairs. He is uncertain of the future of this program is if the machines stop working.



2. Computer Courses

The computer lab is a reasonably sized space with approximately 20 computers. In this classroom, students are learning the basic principles of web design, word processing, and keyboarding. Students noted that they would like to do more hands-on work in the classroom and take fewer notes.

The teacher is certified in business administration. She is always looking for different ways to improve student knowledge. In the future, the teacher is hoping to incorporate photography and photo editing using the Adobe Creative Suite. Before these programs can be offered, cameras and software will need to be purchased, and teacher training needs to occur.

<u>Priority Technical Vocational Programs identified in Tataskweyak Cree Nation:</u>

1. Health Care Assistant

2. Child Care

3. Electronics/Electrical Technologies

4. Construction Technologies

4. Dental Assistant

Wasagamack First Nation

George Knott School, Gr. N-12
Wasagamack, MB, PO Box 82
R0B 1Z0

Technology Education Programs available at George Knott School:

1. Industrial Arts

2. Human Ecology

3. Basic Computer Classes

Community Member Interviews:

On the day of the scheduled school visit, the flight into St. Theresa Point Airport was late. Due to missing the connecting flight to Wasagamack, no visit to George Knott School was conducted. However, there was ample opportunity to compile survey information through conversations with the community members arriving in and departing Wasagamack through the St Theresa Point Airport.

The community of Wasagamack is very supportive of varying the programs available to the students. Due to the remote nature of the community, community members stated that it is difficult for the school to attain qualified teachers. Some community members note that many of the high school students from Wasagamack attend school in St. Theresa Point and Garden Hill, staying with relatives during the school year. It was also noted that some high school students leave Wasagamack to attend programs in Winnipeg.

Priority Technical Vocational Programs identified in Wasagamack:

1. Aircraft Maintenance Technology

2. Power Mechanics/Automotive Technology

3. Carpentry

4. Aesthetics

5. Foods & Nutrition

Delivery Models for Technical Vocational Programs

The following section is the information collected from provincial programs that offer technical vocational education. The focus when visiting these schools was to find the different models used to ensure that students have access to technical vocational programs. Each school visited for the purposes of this report uses a slightly different model. Included in this report are a regional school model, a partnership model, a consortium model, and some online programs. This report will provide a thorough description of each type of model being used at the provincial level for students to access technical vocational programming. The information provided will assist decision makers to examine and determine which model may work best for First Nations students. The use of one or more of these models could grant access to technical vocational programs for all First Nations students living in Manitoba.

Delivery Methods

There are many delivery methods for the technical vocation programming. Each method of delivery is integral to the function of the programs. The delivery methods used are hands-on learning, theory-based classroom learning, and work experience. Technical vocational programs are usually operated in the main school buildings ensuring that students are still able to attend the required courses for high school graduation.

The labs and shops are large workspaces filled with all the tools and machinery that would be found in the industry of each respective vocation. Many of the larger tools are very expensive and require special training for operation and maintenance offered in specialized accreditation programs. While some of these larger tools may only have one, other smaller tools may have a set for each pairing of students. Students learn hands-on work in the labs and workshop area.

The classroom for each lab or shop is either attached to or down the hall from the hands-on learning environment. The classroom is where students learn the theory components of their chosen vocation. For many students, these classrooms function as a lunchroom break room and workspace before, during and after class times.

Another method of delivery for the technical vocational program is cooperative work experience. Work experience is an opportunity for students to work in the trades under the supervision of a skilled tradesperson. Students are encouraged to find their own work placements and being the journey towards completing their level 1certification in their chosen vocation. Work experience is tracked by the amount of hours a student completes at a job. The number of hours for each vocation's level 1 certification varies per program.

Regional School Model

The regional school model is the most common model being used in Manitoba. In the 1970s, the province built a number of regional secondary schools. These regional schools were built specifically to offer technical vocational programs. The two regional schools visited for this report house 14 and 15 technical vocational programs while still offering the regular programming required for students to receive a high school diploma in Manitoba. The regional school model seems to work well in regions where the population is spread out and people are travelling towards a central business district (such as a large town or small city). The programs offered in this model would be most cost-effective running at full capacity. Therefore, if this a program model of interest, any and all eligible students should be encouraged to apply and participate.

An example of a First Nations-operated regional school is Southeast Collegiate (SEC) in Winnipeg. SEC draws students from First Nations in Manitoba to participate in secondary education. First Nations involved at SEC include Black River, Pauingassi, Bloodvein, Little Grand Rapids, Poplar River, Berens River, Hollow Water, and Brokenhead. According to the SEC website, technology education courses offered are as follows: Design/Drafting (AutoCAD), Human Ecology, Foods and Nutrition, Power Mechanics, Multi-Media, and various Virtual High School courses.

Online Program Model

The online program model is already being used for certain programs in some First Nations schools. However, none of the programs are technical vocational programs. An online program model is a series of course offerings made available to students via web-based platforms. This model allows instructors and students to reside in different locations in the province. Currently, there are online courses available through Wapaskwa Virtual Collegiate. The courses available in the Wapaskwa Virtual Collegiate include the mandatory courses for graduation in Manitoba as well as a handful of applied business education courses. Other online programs available for students in Manitoba include early childhood education through multiple post-secondary institutes. Other than early childhood education programs, online technical vocation programs are either non-existent or inaccessible and difficult to find. Possible technical vocational programs that would lend themselves well to an online program model include design drafting, cyber security, and/or other computer-based programs. There are some programs in the province that are being developed for online technical vocational programs, but there are not yet in operation.

Partnership Model

The partnership model for delivering technical vocational programs to First Nations is a possible way for communities within a region to work together to provide technology educations programs for all students. A partnership model is an agreement between two schools to ensure that the different programs available at each school are made available to all students of both schools. Partnership models rely on building and fostering relationships between the schools and communities. For partnerships in education to work properly, there needs to be reciprocation between the parties involved. Thanks to air travel, partnerships can also be made across larger distances if both parties are committed to providing specialized programs to students.

Consortium Model

The consortium model is an interesting model that provides access to highly sophisticated and expensive technical programming. This model gives opportunities for students to access technical vocational programming where there would not normally be enough student population in one area to fund a technical vocational program. Different programs are scattered throughout the region of the consortium, and students travel to and from their selected programs each day. Busses will drive students to the edge of their school division zones to meet with the busses from other school divisions. Students will move from one bus to the other until they arrive at the school where their program is offered. This method of transportation ensures that each bus is only driving half the total distance between schools. Some students may be travelling over an hour in each direction every day. The delivery of technical vocational programs could be made available to a larger region if accommodation were made available to participants.

Crocus Plains Regional Secondary School

Gr. 9-12
Regional School Model

1930 1st Street
Brandon, Manitoba
R7A 6R6

Technical Vocational Programs available at Crocus Plains:

1. High School Apprenticeship
2. Automotive Technology
3. Carpentry
4. Collision Repair Technology
5. Culinary Arts
6. Design Drafting
7. Early Childhood Education
8. Electronic Sciences & Technology
9. Graphic Design
10. Hairstyling
11. Health Care Aide
12. Photography
13. Sounds Engineering
14. Welding Technology

Catchment Area

Students from the City of Brandon and surrounding area attend Crocus Plains Regional Secondary School for technical vocational programming. Crocus Plains also allows students who live outside of the City of Brandon to apply, but they are not guaranteed a spot in the program. Students from Sioux Valley are bussed to Crocus Plains Regional Secondary School daily. Any students attending Crocus Plains from other First Nations are likely driving in daily or staying with relatives or family friends in Brandon during the school year.

Programs where Crocus Plains has found success:

During the visit at Crocus Plains, the administration was asked which technical vocational programs would be a good starting point for MFNERC based on their successes. The following is a list of the programs in which Crocus Plains has found the most success:

1. Carpentry
2. Culinary Arts
3. Hairstyling
4. Health Care Assistant

The principals at Crocus Plains found success in consulting a Trades Advisory Committee (TAC) before starting any new programs to ensure that students are marketable to a workforce upon completion of the program. TACs also help ensure the programs meet the demand of industry, foster partnerships formed and maintained with post-secondary institutions, and identify how to properly train the students in a specific vocation. The TAC that was recently formed for one of the programs at Crocus Plains consists of government consultants, post-secondary representatives, and school division superintendents, principals and teachers.

Lord Selkirk Regional Comprehensive Secondary School

Gr. 9-12
Regional School Model

221 Mercy Street
Selkirk, Manitoba
R1A 2C8

Technical Vocational Programs available at Lord Selkirk Regional:

1. Automotive Technology
2. Baking & Pastry Arts
3. Child Care
4. Collision Repair Technology
5. Culinary Arts
6. Design Drafting
7. Electrical Trades Technology
8. Nail Technology
9. Hairstyling
10. Heavy Duty Equipment
11. Machining Technology
12. Networking & Cyber Security
13. Photography
14. Print Media
15. Welding Technology

Catchment Area

Students from the City of Selkirk and surrounding area attend Lord Selkirk Regional Comprehensive Secondary School (LSRCSS) for technical vocational programming. LSRCSS also allows students who live outside of the City of Selkirk to apply to programs, but they are not guaranteed a spot. Students from all over the region apply. Though there are a number of students who attend the school from First Nations, there are no formal partnerships between First Nations and LSRCSS or the Lord Selkirk School Division.

Programs where LSRCSS has found success:

During the visit, the vice-principal in charge of technical vocational programming was asked which technical vocational programs would be a good starting point for MFNERC based on their successes. The following is a list of the programs where LSRCSS has found the most success:

1. Automotive Technology
2. Carpentry
3. Child Care
4. Culinary Arts
5. Applied Business Technology

Major Pratt School

Gr 7-12
Partnership Model

404 Russell Street East
Russell, Manitoba
R0J 1W0

Technical Vocational Programs available in Park West School Division:

1. Cosmetology (Hairstyling, Skin Technology, Nail Technology)
2. Health Care Assistant
3. High School Apprenticeship

Other Technology Education Programs available in Park West School Division include:

4. Industrial Arts – Electronics Technology
5. Industrial Arts – Metalworking Technology
6. Industrial Arts – Woodworking Technology
7. Industrial Arts – Construction Technology
8. Human Ecology – Family Studies
9. Human Ecology – Food & Nutrition
10. Human Ecology – Textile Arts & Design
11. Applied Business - Accounting Essentials
12. Applied Business - Accounting Systems
13. Applied Business - Applied Business Technologies
14. Applied Business – Business Innovations
15. Applied Business – Business Management
16. Applied Business – Creative Promotions
17. Applied Business – Retailing Perspectives
18. Applied Business – Venture Development

Catchment Area

Students living in Russell and in Waywayseecappo First Nation can attend technology education programming offered at Major Pratt School. Major Pratt School would allow students from other communities to participate in their programs, but they are currently at capacity and cannot accept any more students.

Students from Waywayseecappo are bussed into school daily. For students, it is a 20-minute drive to/from the school. Students from Waywayseecappo who are not interested in technology education programs can also attend Rossburn Collegiate. Rossburn is a 5-minute drive from Waywayseecappo.

Partnership Program

The partnership between Park West School Division and Waywayseecappo began many years ago. Administration thinks the partnership between Park West School Division and Waywayseecappo has been mutually beneficial. The knowledge and skills obtained in the technology education programs have allowed members of Waywayseecappo to build houses, businesses, and family lives. On the other hand, the students attending Major Pratt School from Waywayseecappo ensure that these expensive programs remain at capacity. Ultimately, a program at capacity reduces the cost per student in regards to purchasing tools and machinery.

Partnerships like this could be feasible in other areas of the province. Facilitating partnerships between the education authorities in First Nations and nearby provincial high schools that offer technical vocational programs could allow First Nations students the opportunity to attend these programs. By attending existing programs, these types of partnerships may eliminate the need to invest in new technology education facilities while ensuring that the existing programs in the province are at capacity. Though the development of each partnership may differ slightly, they may allow greater access to technical vocational programs for all First Nations students.

Programs in which Major Pratt has found success:

During the visit at Major Pratt School, the principal was asked which technology education programs would be a good starting point for MFNERC based on their successes. The following is a list of the programs in which Major Pratt has found success:

1. Industrial Arts – Electronics Technology
2. Industrial Arts – Metalworking Technology
3. Industrial Arts – Woodworking Technology
4. Industrial Arts – Construction Technology
5. Career Development: Life/Work Courses

Red River Valley Technical Area (RRTVA)

Gr. 9-12
Consortium Model

120-9th Street NW
Altona, Manitoba
R0G 0B1

Technical Vocational Programs available in the RRTVA:

1. Automotive Technology
2. Baking & Pastry Arts
1. Carpentry
2. Child Care
3. Collision Repair & Refurbishing
4. Culinary Arts
5. Electrical Trades Technology
6. Aesthetics (Nail Tech. & Skin Tech.)
7. Hairstyling
8. Health Care Assistant
9. Heavy Duty Equipment
10. Horticulture (inactive program)
11. Plumbing & Pipe Trades
12. Welding Technology

Catchment Area

The Red River Valley Technical Area (RRTVA) education programs are offered based upon a consortium of five school divisions in southern Manitoba who have partnered together to ensure that technical vocational programs are made available to all students in the region. Any student wishing to take part in technical vocational programming in southern Manitoba is encouraged to apply. The school divisions involved in the program are Borderland School Division, Division Scolaire Franco-Manitobaine, Garden Valley School Division, Red River Valley School Division, and Western School Division. The RRTVA does have First Nations students living in southern Manitoba who apply and are currently enrolled in the programs offered.

Programs where the RRTVA has found the most success:

During the tour of the RRTVA, the program director was asked which technical vocational programs would be a good starting point for MFNERC based on their successes. The following is a list of the programs where the RRTVA has found the most success:

1. Automotive Technology
2. Carpentry
3. Child Care
4. Culinary Arts
5. Hairstyling
6. Heavy Duty Mechanics
7. Welding Technology

Sisler High School – Cyber Academy

Gr. 9-12
Online Program Model

1360 Redwood Avenue
Winnipeg, Manitoba
R2X 0Z1

Technical Vocational Programs available at Sisler High School:

1. Automotive Technology
2. Design Drafting
3. Networking & Cyber Security
4. Photography
5. Print Media

Other technology education programs include:

1. Human Ecology - Home Economics
2. Human Ecology – Foods & Nutrition
3. Human Ecology - Textile Arts & Design
4. Industrial Arts - Construction Technology
5. Industrial Arts - Electronics Technology
6. Industrial Arts - Graphic Communications
7. Industrial Arts - Metalworking Technology
8. Industrial Arts - Power Mechanics Technology
9. Industrial Arts - Woodworking Technology
10. Applied Business - Accounting Essentials
11. Applied Business - Accounting Systems
12. Applied Business - Applied Business Technologies
13. Applied Business – Business Innovations
14. Applied Business – Business Management
15. Applied Business – Creative Promotions

*Please note, the focus of the conversation with the instructor at Sisler High School was on the topic of their Cyber Security programs. The instructor offered that Cyber Security and other computer-based courses lend themselves well to an online program model.

Catchment Area

Students living in the North End of the City of Winnipeg can attend Sisler High School for the Cyber Security program. Sometimes, the Cyber Security program also allows students who live outside of the catchment area to apply, but they are not guaranteed a spot in the program. Often the program is already full and does not open to outside applications. Due to these restrictions, any students who live in First Nations and are interested in the program may need to relocate to be within Sisler High School's catchment area in order to be considered for this program.

Delivery of Program

The Cyber Security program is offered in a computer lab with very capable computers. With a mix of lecture method and hands-on work experience in the classroom, students put their knowledge to use under the supervision of a trained instructor. Students have opportunities throughout the year to compete in a multitude of local and international competitions. Upon satisfactory completion of this high school program, students receive a Manitoba High School Diploma. Many graduates of this programs are able to competently enter the workforce right out of high school. Other students attend university to further their education.

Though not up and running through Sisler High School, the instructors are working on creating online programs related to topics in cyber security for the University of Winnipeg and the Manitoba Institute for Trades and Technology (MITT). These programs will cover all materials required for credit in the high school cyber security curriculum. The idea behind these programs is to allow remote access to cyber security programs. By creating online programs, geographic obstacles are more easily overcome.

Summary of Interview with Sisler Cyber Academy Instructor:

If there is anyone interested in providing cyber security programs, they should try to tap into existing online programs that should be available in the near future. The instructors noted that there are online cyber security programs offered through MITT and the University of Winnipeg.

The instructors also offered to provide a presentation about cyber security for stakeholders once a decision has been made about which technical vocational programs may be a focus for MFNERC as this project progresses. This may be an opportunity for the Wapaskwa Virtual Collegiate to expand by adding a cyber security or IT Help course offering to interested students.

Priority Technical Vocational Programs

The primary purpose of this report is to provide a list of the five priority technical vocational programs as identified by First Nations surveyed. This section of the report will identify the most requested technical education programs. The identification of the five priority program areas was made through the tabulation of surveys. Participants were asked to pick the programs that most interested them from a list of all programs offered in Manitoba. The list of technology education programs available in Manitoba was created using resources from the Manitoba Education and Training website.

The following is a breakdown of the five most requested technical vocational programs:

1. Carpentry/Construction Technologies
2. Electronics/Electrical Technologies
3. Automotive/Power Mechanics
4. Child Care
5. Health Care Assistant

Other noteworthy program requests included:

6. Career Development: Life/Work Courses
7. Heavy Duty Equipment
8. Baking & Pastry Arts
9. Family Studies

Recommendations

While there are many human ecology, industrial arts, and applied business education programs located in First Nations schools, there are very few technical vocational programs. Creating new technical vocational programs in First Nations or increasing access to already existing programs in the province could be a positive step forward for students. In waiting for these improved programs, there are ways to improve the technology education programs that exist in First Nations. Three improvements that can be made to help technology education teachers working in the existing industrial arts, human ecology, and applied business education programs are as follows: submit budget and get leadership approval, help teachers create and foster professional teaching networks, and provide access to teacher training.

Quality technology education programming is an expensive endeavour. It becomes increasingly difficult to offer these programs when "the educational [funding] gap between First Nations and the rest of the country is increasing" (Drummond, 2013, p. 2). According to Drummond (p.16, 2013), federal funding for on-reserve students does not support the technological and vocational training needs of a 21st-century school system. A report released by the Office of the Parliamentary Budget Officer (2016) states that the per-student funding rate in Manitoba is roughly the same for all students within the province (p. 26). However, the report also notes the "funding mechanisms put band-operated schools in remote regions at a significant disadvantage (p.25)." While the funding allocations may be the same throughout the province, the cost of goods and services is drastically higher when living in remote communities. Due to the heavy nature of many technical vocational programs' tools and materials, high costs of shipping and handling can be incurred. In speaking with the teachers of the existing technology education programs in First Nations schools, they often did not know the budget allotment for their programs nor were they given an amount allowable for expenditures on consumable items, tools, or machinery. Drummond (2013) offers that "education is critical to fostering a better future for First Nations people (p.2)." He goes on to note that "if funding were based on need… on-reserve funding would be higher, not lower than the provincial averages (p. 14)." A good technology education program is backed by a sufficient budget and funding should reflect the expectations of quality programs that would be found in a provincially funded program taking into account the cost of goods and services as well as teacher training. Without proper funding and established budgets, the establishment and continuation of technology education programming may become a daunting task in Fist Nations.

Working in technology education can be isolating, especially for those teachers in remote communities (Trach, 2019). It was observed during school visits that there was often only one teacher working with students in any given technology education program. It is important for teachers to have an opportunity to interact with other teachers who are teaching the same subjects. These interactions are few and far between for some of the technology education teachers working in First Nations schools. Ingvarson and Marett (2005) identify professional communities and networks to being essential components to professional development (p. 232). It would be beneficial for the programs, the teachers, and the students if there were an opportunity for all technology education teachers to interact and share ideas in a professional setting. Creating a Professional Learning Network (PLN) among the technology education teachers will provide ongoing support for those who are feeling isolated. The PLN could be established by collecting phone numbers, emails, and any other method of communication available to the teachers who are willing to participate. The communication information could then be shared with everyone on the list. It would be the onus of the teachers to contact one another as needed. This list would need to be maintained and updated yearly. A good time to advertise this list could be during MFNERC's yearly Lighting the Fire conference in Winnipeg. Trach (2019) notes that the usage of already existing social media platforms (such as Twitter, Facebook Groups, and LinkedIn) is another way to establish a PLN.

Teachers, especially those in remote fly-in communities, have asked for improved teacher training within their respective course offerings. The training being requested is not formal university or college training, though, when asked, most teachers stated they would be willing to further their university and/or college training. Often, the training being asked for can be resolved with a phone call, or a Skype conversation, with another teacher implementing a technical vocational program. The request for training may be resolved through the establishment and fostering of a PLN.

To conclude the recommendations section of this report, the existing technology education programs in First Nations schools may be enhanced by having access to appropriate funding. Supporting teachers through an approved and available budget, helping teachers establish PLNs, and providing access to teacher training may help strengthen the programs that are currently available to students living in First Nations.

Conclusion

The findings in this report note a lack of access to technical vocational programming in First Nations. According to the technical vocational vision of the Manitoba Curriculum, in order "for Manitoba's youth to function, compete, and excel in this twenty-first-century environment, they require educational and training opportunities that are current, engaging, and responsive to labour market needs (p. 3)."

The first part of this report identified the existing technology education program available in First Nations schools. For most of the First Nations high schools, the existing programs include industrial arts woodworking programs, human ecology foods and nutrition programs, and some basic computer programs of varying levels of difficulty.

The second part of this report described the current models being used to deliver existing technical vocational programs throughout Manitoba; models included are the regional school model, the online program model, the partnership model, and the consortium model.

The third part, and primary purpose, of this report identifies that carpentry, electronics/electrical technology, automotive technology, child care, and health care assistant programs are the top five most requested technical vocational programs by First Nations surveyed. The most requested technical vocational programs must be considered in moving forward with technical vocational programming on-reserve.

The last part of this report provided three general recommendations to enhance the existing technology education programs. The recommendations are as follow: address the education funding gap between First Nations schools and provincially funded schools in order to help establish proper budgets; aid in the establishment and fostering of Professional Learning Networks via telephone, Internet, and/or in person throughout First Nations to reduce the feeling of isolation associated with working in remote situations; and provide more access to teacher training for the teachers working in existing industrial arts, human ecology, and applied business education programs in First Nations. Moving technical vocational programming forward in First Nations must also include a comprehensive training plan to ensure that local teachers are trained to teach in the existing and identified technical vocational areas.

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Appendices

Principal Questionnaire

Personal Information:

Community Name: _____

School Name: _____

Principal Name: _____

Date of Meeting: _____

Approx. # of people in community: _____

# of Teachers working in the school: _____

#of Staff Members in the school: _____

# of High School Students in the school: _____

# of classroom in the school: _____

Do students from other communities attend your school? ☐ Yes ☐ No

Would it be feasible for students to attend your school to participate in Technology Education courses? ☐ Yes ☐ No

If students are coming in from other communities:

Where do they stay? _____

What is the cost per students for one year of courses? _____

After graduation, how many students move on to post-secondary education?

University Degrees: _____ average/year

Skilled Trades _____ average/year

Does your community provide funding for post-secondary? ☐ Yes ☐ No

What is the physical size of your school: _____

Are there Technology Education programs offered in the school? ☐ Yes ☐ No

If yes, what is the physical size of your shop facilities: _____

Do you believe these facilities are sufficient for student learning? ☐ Yes ☐ No

What improvements at your school will help improve student learning?

_____

_____

Do you think that Technology Ed. programs benefit the community? ☐ Yes ☐ No

What types of programs do you think will most benefit the community?

_____

If there is not one already, is there a location at your school where you could put a Technology Education facility? ☐ Yes ☐ No

If yes, where? _____

If no, is there a location in your community? ☐ Yes ☐ No

Name the location. _____

Are you aware of any funding from the Prov. or Fed. government? ☐ Yes ☐ No

What's the name of the fund? _____

Have any teacher in your school applied for funding? ☐ Yes ☐ No

<u>Programs Offered:</u>

Which programs are currently offered in your school? (In Blue)

Which programs that not currently offered would you like to see? (In Green)

Industrial Arts

□	Drafting Design Technology	□	Woodwork Technology
□	Electricity/Electronics Technology	□	Construction Technology
□	Graphic Communications Technology	□	Furniture Design Technology
□	Metalwork Technology	□	Manufacturing Technology
□	Power Mechanics Technology	□	Applied Technology

Technical Vocational

□	Aircraft Maintenance Technology	□	Aesthetics
□	Automotive Technology	□	Nail Technology
□	Baking & Pastry Arts	□	Skin Technology
□	Cabinet Making & Furniture Making	□	Fashion Design & Technology
□	Carpentry	□	Graphic Design
□	Child Care	□	Hairstyling
□	Collision Repair & Refurbishing	□	HealthCare Assistant
□	Culinary Arts	□	Heavy Duty Equipment
□	Dental Assisting	□	Horticulture
□	Dental Technology	□	Industrial Electronics
□	Design Drafting	□	Interactive Digital Media
□	Electrical Trades Technology	□	Jewellery & Metalsmithing
□	Electronics Technology	□	Machining Technology

- □ Mining Engineering Tech.
- □ Networking & Cyber Security
- □ Photography
- □ Plumbing & Pipe Trades
- □ Print Media
- □ Refrigeration & A/C
- □ Resources & Env. Management
- □ Sound Engineering
- □ Sustainable Energy
- □ Welding Technology

Human Ecology Education

- □ Environmental Design
- □ Family Studies
- □ Food & Nutrition
- □ Human Ecology
- □ Textile Arts & Design

Applied Commerce Education

- □ Accounting Essentials
- □ Accounting Systems
- □ Applied Business Technologies
- □ Business Communications
- □ Business Innovations
- □ Business Management
- □ Creative Promotions
- □ Economic Principles
- □ Entrepreneurship
- □ Marketing & Digital Commerce
- □ Personal Finance
- □ Retailing Perspectives
- □ Topics & Trends in Business
- □ Venture Development

Related Career Development Courses

- □ Career Development: Life/Work courses
- □ Credit for Employment (CFE)
- □ Career Development Internship (CDI)
- □ Community Service Student-Initiated Project (CSSIP)

Teacher Questionnaire

Identifying Information:

Community Name: _____

School Name: _____

Teacher Name: _____

Program type: _____

Date of Meeting: _____

# of High School Students in course: _____

Program Information:

Description of the program:

_____

_____

_____

What is a typical project for a high school student in your classroom?

_____

_____

_____

What tools & processes do you teach in your classroom?

_____

_____

_____

Are there any students from other communities in the program? ☐ Yes ☐ No

Which communities do they come from?

_____

How do they arrive to your school? _____

Facility Information:

Are your tools in good condition? ☐ Yes ☐ No

Do any tools need updating? ☐ Yes ☐ No

How many tools need updating? _____

Which ones?

_____

_____

Do any tools need replacing? ☐ Yes ☐ No

How many tools need replacing? _____

Which ones?

_____

_____

What is your consumables budget? $_____

From where do you order? _____

How often do you order? _____

How long do materials take to arrive? _____

What is your equipment budget? $_____

From where do you order? _____

How often do you order? _____

How long does equipment take to arrive? _____

What is the physical size of your classroom? _____

Do you believe the size of your facility is sufficient? ☐ Yes ☐ No

What improvements in your facility will help improve student learning?

_____

_____

Is your facility properly ventilated? ☐ Yes ☐ No

Are safety materials (PPE, WHMIS, MSDS, etc.) displayed properly? ☐ Yes ☐ No

<u>Qualifications & Vision:</u>

Do you have the correct qualifications to teach Industrial Arts? ☐ Yes ☐ No

If so, what are your professional qualifications? _____

Do you have the correct qualifications to teach Technical Vocational? ☐ Yes ☐ No

If so, what are your professional qualifications? _____

Do you have the correct qualifications to teach Human Ecology? ☐ Yes ☐ No

If so, what are your professional qualifications? _____

Do you have the correct qualifications to teach Applied Commerce? ☐ Yes ☐ No

If so, what are your professional qualifications? _____

If not, would you be willing to further your education in a teacher education program? ☐ Yes ☐ No

How do you envision growing your program?

_____

_____

Do you think that your program benefits the community? ☐ Yes ☐ No

How does your program benefit the community?

_____

_____

Is there anyone in your community that could help your students in a cooperative work placement situation for your program? ☐ Yes ☐ No

If yes, who? _____

Are you aware of any governmental funding to improve your facility? ☐ Yes ☐ No

Have you ever applied for funds to improve your facility? ☐ Yes ☐ No

General School Survey

Personal Information:

Community Name: _____

School Name: _____

Affiliation to School: (please check all that apply)

☐ Student ☐ Teacher ☐ Parent ☐ Elder ☐ Chief/Council

If other, specify: _____

Program Information:

Section A (complete if there is a Technology Education Program at your school)

1. Which Technology Education Program available at your school:

(Please check all that apply.)

☐ Industrial Arts ☐ Applied Commerce (formerly Business Ed.)

☐ Human Ecology ☐ Cooperative Technical Vocational

2. Please specify which courses are available:

_____

_____

3. Does the program meet the needs of the students?

☐ Yes ☐ No

4. How can the program be improved?

_____

_____

Section B (complete if there is **not** a Technology Education Program at your school)

5. Why do you think is the reason for there not having a program in your community?

_____

_____

6. Do you think there is a need for Technology Education Programs in your school?

☐ Yes ☐ No

6 a) If yes, which programs do you think would best serve your community?

☐ Industrial Arts ☐ Applied Commerce / Business Education

☐ Human Ecology ☐ Cooperative Technical Vocational

7. Does your school have any teachers using hands-on lessons to teach Science, Technology, Engineering or Math?

☐ Yes ☐ No

7 a) If yes, who? What subject do they teach?

Teacher's Name: _____

Subject: _____

8. How does the teacher use hands-on lessons to improve learning?

_____

_____

_____

Program Improvements:

Section C (complete this section whether or not there is a Technology Education program in your school)

9. Is there a need for improved Technology Education Programming in your school?

☐ Yes ☐ No

10. Does your program have a designated facility?

☐ Yes ☐ No

10 a) If yes, do you think the facility meets the students' needs?

☐ Yes ☐ No

10 b) If no, is there a location in the school or the community where a facility could be placed?

☐ Yes ☐ No

10 c) Please identify a location: _____

11. How would improved Technology Education Programming benefit your school and/or community?

_____

_____

12. Can you identify any skilled trades companies (ie. Welders, Plumbers, Automotive Shops, etc.) in your community who might be willing and able to provide apprenticeship positions to students in a Cooperative Vocational Program if it were available in your school?

☐ Yes ☐ No

12 a) If yes, Please provide contact information for the company

Company Name: _____

Owner's Name: _____

Phone Number: _____

13. From the list below, please number (from 1 – 5) the top programs that you think would most benefit your school and community.

Industrial Arts

□	Drafting Design Technology	□	Woodwork Technology
□	Electricity/Electronics Technology	□	Construction Technology
□	Graphic Communications Technology	□	Furniture Design Technology
□	Metalwork Technology	□	Manufacturing Technology
□	Power Mechanics Technology	□	Applied Technology

Technical Vocational

□	Aircraft Maintenance Technology	□	Hairstyling
□	Automotive Technology	□	HealthCare Assistant
□	Baking & Pastry Arts	□	Heavy Duty Equipment
□	Cabinet Making & Furniture Making	□	Horticulture
□	Carpentry	□	Industrial Electronics
□	Child Care	□	Interactive Digital Media
□	Collision Repair & Refurbishing	□	Jewellery & Metalsmithing
□	Culinary Arts	□	Machining Technology
□	Dental Assisting	□	Mining Engineering Tech.
□	Dental Technology	□	Networking & Cyber Security
□	Design Drafting	□	Photography
□	Electrical Trades Technology	□	Plumbing & Pipe Trades
□	Electronics Technology	□	Print Media
□	Aesthetics	□	Refrigeration & A/C
□	Nail Technology	□	Resources & Env. Management
□	Skin Technology	□	Sound Engineering
□	Fashion Design & Technology	□	Sustainable Energy
□	Graphic Design	□	Welding Technology

Human Ecology Education

□	Environmental Design	□	Food & Nutrition
□	Family Studies	□	Human Ecology

□ Textile Arts & Design

Applied Commerce Education

□ Accounting Essentials
□ Accounting Systems
□ Applied Business Technologies
□ Business Communications
□ Business Innovations
□ Business Management
□ Creative Promotions
□ Economic Principles
□ Entrepreneurship
□ Marketing & Digital Commerce
□ Personal Finance
□ Retailing Perspectives
□ Topics & Trends in Business
□ Venture Development

Related Career Development Courses

□ Career Development: Life/Work courses
□ Credit for Employment (CFE)
□ Career Development Internship (CDI)
□ Community Service Student-Initiated Project (CSSIP)

Thank you for completing this survey!

Your input will help improve Technology Education Programming in Manitoba.

Schools that may have more to share

The following is a list of schools that participated in the study but did not provide enough details about their programs to further inform this report. Below are the programs available in those schools.

Chemawawin Cree Nation

Chemawawin School, Gr. N-12

Easterville, PO Box 10

R0C 0V0

Technology Education Programs available at Chemawawin School:

1. Industrial Arts
2. Human Ecology
3. Computer/Business Education Courses

Ebb and Flow First Nation

Ebb and Flow School, Gr. N-12

Ebb and Flow, MB, PO Box 160

R0L 0R0

Technology Education Programs available at Ebb and Flow School:

1. Human Ecology – Food & Nutrition
2. Human Ecology – Textile Arts & Design
3. Human Ecology – Family Studies

Fisher River Cree Nation

Fisher River High School, Gr. 7-12

Fisher River, MB, PO Box 360

R0C 1S0

Technology Education Programs available at Fisher River High School:

1. Industrial Arts Courses
2. Home Economics

Lake Manitoba Nation

Lake Manitoba School, Gr. N-12

Lake Manitoba, MB, PO Box 1249

R0C 3K0

Technology Education Programs available at Lake Manitoba School:

1. Industrial Arts – Woodworking Technology

Pinaymootang First Nation

Pinaymootang School, Gr. N-12

717 School Road, Fairford, MB

R0C 0X0

Technology Education Programs available at Fisher River High School:

1. Industrial Arts
2. Human Ecology
3. Basic Computer Classes

Schools that declined to participate

The following is a list of the schools that declined to participate.

Peguis First Nation

Peguis Central School, Gr. N-12

Peguis, MB, PO Box 670

R0C 3J0

Southeast Collegiate, Gr. 10-12

1269 Lee Boulevard

Winnipeg, MB

R3T 5W8