

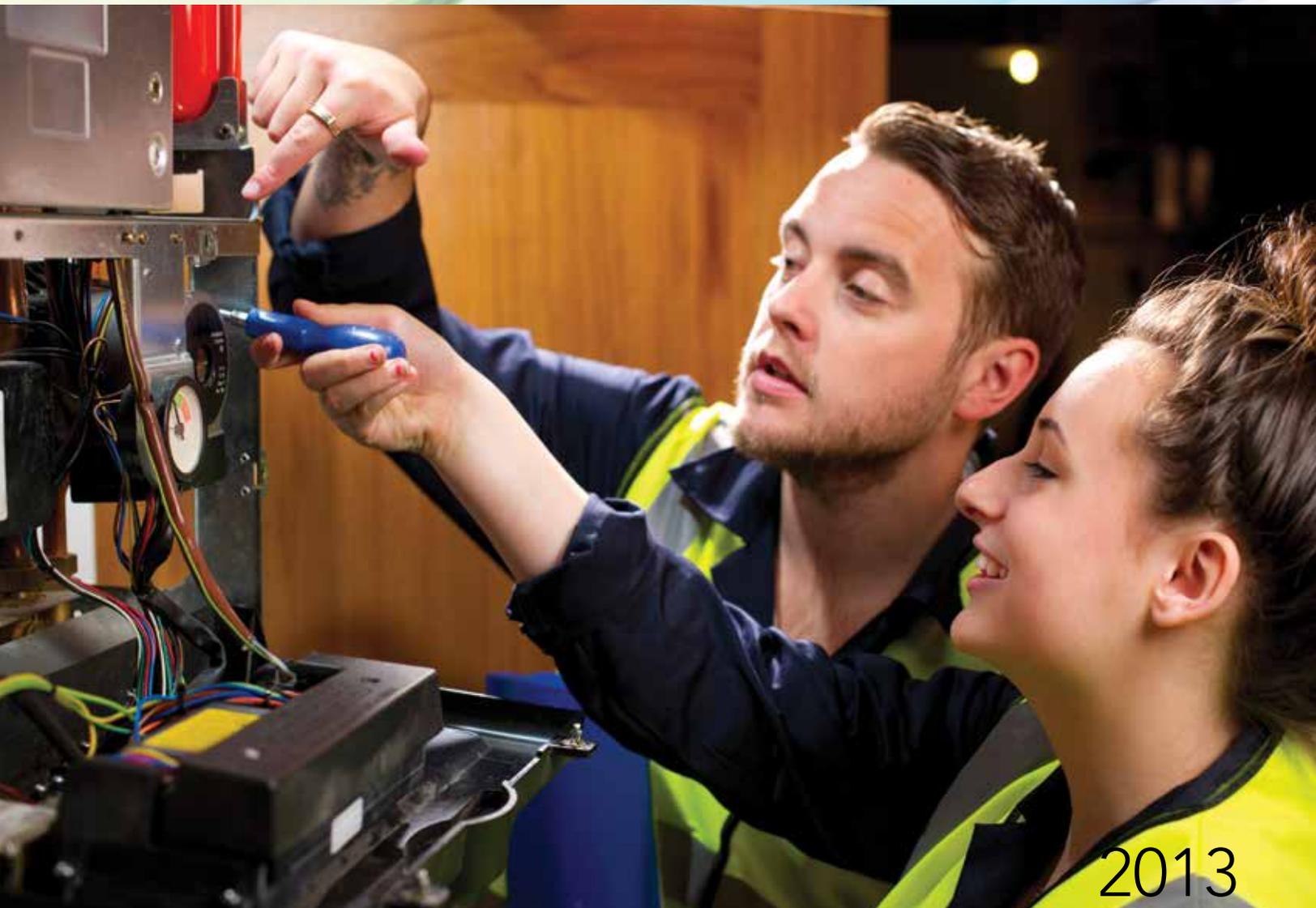
CODE

Council of Ontario Directors of Education

CODE HEALTH AND SAFETY COMMITTEE

Student Safety in Secondary Technological Education Grades 9 to 12

A Resource for School Administrators



2013

About this guide

This resource is designed to help principals, vice-principals and supervisory officers promote and address health and safety provisions and requirements in schools. Developed by a team of educators and health and safety professionals as a support to the Student Injury Prevention Initiative, this document will help school leaders to know, recognize and respond to their responsibilities and duties regarding student health and safety in school technological facilities (*Ontario Ministry of Education, Memorandum, George Zegarac, Deputy Minister, January 30, 2013*). The information contained in this resource was compiled through a series of consultations with school board educators and school board health and safety representatives, and with partner organizations that offer health and safety services to the education sector.

This document was developed by the Council of Ontario Directors of Education with funding provided by the Ministry of Education, Government of Ontario.

Table of Contents

Purpose of this Resource	3
Teacher Qualifications	4
Technological Education Programs	7
Technological Safety Checklist	8
Appendix A: Program Expectations	16
Appendix B: Sample Student Safety Passports	24

Background

The fundamental philosophy of broad-based technological education is that students learn best by doing. That is why the technological education curriculum is designed to be activity-based and project-driven. And it is also why maintaining a safe learning environment is critical to the success of the curriculum.

Technological education teachers play a key role in promoting safety. They carefully select appropriate activities, communicate safety expectations and model safe practices “in accordance with school board policies and procedures, Ministry of Education policies, and Ministry of Labour regulations”. (*Technological Education – Grades 11-12, 2009*). Teachers are also responsible for ensuring the safety of students during classroom activities, and for encouraging and motivating students to assume responsibility for their own safety and the safety of others.

Teachers must also ensure that students acquire the knowledge and skills needed for safe participation in all technological activities. (*Technological Education – Grades 11-12, 2009*)

By doing so, students will develop an attitude of “safety mindedness”, allowing them to work responsibly with their peers in a technological education facility, recognize potential hazards, and take appropriate precautions to mitigate the risk of these hazards.



Purpose of this Resource

(Note: throughout this document, the word “principal” will be used to refer to both principals and vice-principals.)

The activities conducted on any given day in a school’s technological education facilities raise a broad range of safety concerns. For a principal with limited knowledge of technology-specific safety requirements (such as appropriate machine guarding), it is difficult to assess whether or not the proper safety precautions are in place.

With these important considerations in mind, this resource provides a set of markers, called “look fors,” that are characteristic of a safe learning environment. These markers are not intended to be a comprehensive checklist of technological education safety; rather, they can be used to initiate an open and collaborative dialogue between principal and teacher for the purpose of enhancing safety. As a result, the principal is reassured that safety is sufficiently addressed, and that the teacher has conducted an objective assessment of the safety practices in his or her courses.

The use of this resource is not intended to replace regular inspections by experts trained to assess the degree to which observed practices comply with current health and safety legislation and best practices.

Teacher Qualifications

A teacher's qualifications and comfort level in delivering the many facets of a broad-based technology program are an important program and safety consideration when it comes to creating a safe learning environment.

For example, a teacher may enter the Faculty of Education as a certified journeyman and experienced machinist and, upon graduation, be qualified to teach manufacturing technology. However, this same teacher may be assigned to teach a manufacturing technology program with a welding focus – an area in which he or she may have limited training in the safe use of welding equipment. In situations such as this, the teacher can provide students with an enhanced and safer program by gaining additional qualifications that broaden his or her skill sets.

Compulsory Certification and Technological Education

Some skilled trades require “compulsory certification” before an individual can practice that trade. These include:

- Automotive technicians
- Hairstylists
- Electricians
- Plumbers

Education programs related to trades such as these require fully-qualified technological education teachers with current qualifications in their specific trade area. To teach transportation technology, for example, teachers must have both transportation technology senior qualifications and a valid certificate of qualification as an automotive technician in order for their students to work on licensed vehicles as part of the program.

In the event of qualification concerns, the Ministry of Education's *Teacher Assignment in Ontario Schools, A Resource Guide, Revised Edition March 2011* provides more specific information and examples.

Shared Understanding and Sample Discussion Questions

This guide provides sample discussion questions intended to initiate an open and collaborative discussion between the teacher and the principal. In this conversation, the principal is not expected to be an expert. Instead, the questions are designed to enhance his or her knowledge of classroom safety precautions currently in place. At the same time, the discussion allows teachers to objectively assess the health and safety practices in their programs, and assure the principal that health and safety issues are being sufficiently addressed.

The questions are either instructional or procedural in nature.

Sample Instructional Questions:

1. What is your process for demonstrating the proper and safe use of the equipment that students will use?
2. Do students complete both a test and a practical demonstration as evidence of their competence on a piece of equipment? How is this information recorded?
3. Do you use a “safety passport” to document the competence?
4. What do you do if a student has missed a safety lesson on a piece of equipment?
5. What happens if a student has not earned the “right” to use a piece of equipment?
6. How do you model best practices with regard to health and safety?



Sample Procedural Questions:

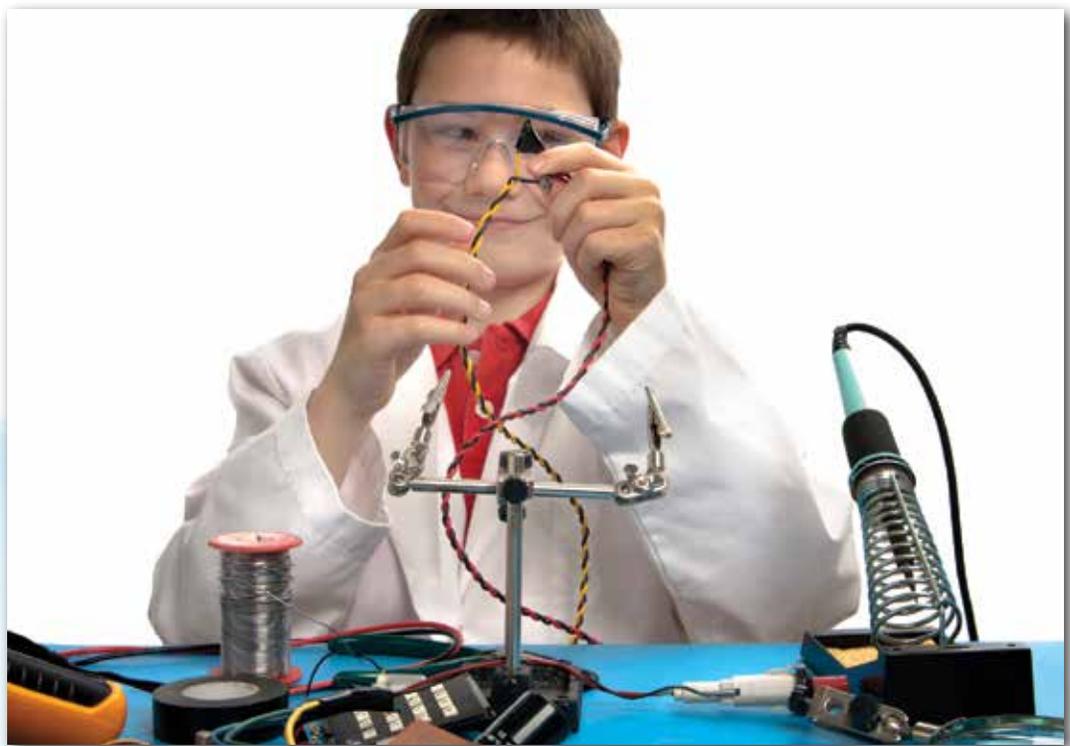
- 1.** To whom do you report hazardous working conditions or defects to the facility, machinery or equipment?
- 2.** Do you regularly inspect the machinery, equipment and environmental factors for safety? Do you have a checklist that you use to report the results of your inspection?
- 3.** What process do you use to ensure students are adequately supervised in the event that you must leave the room? How do you shut off and lock out power to the equipment when you leave?
- 4.** What procedures do you follow to assist a student involved in a minor accident while maintaining the safety of the other students?
- 5.** What procedures do you follow to assist a student involved in a serious accident requiring medical attention while maintaining the safety of the other students? How do you ensure that the scene of the accident is maintained in the event of further investigation?

Technological Education Programs

The remainder of this resource is organized according to the ten technological education program areas. Included are:

- ◆ A checklist of safety observations or ‘look fors’ for each program area;
- ◆ The overall and specific curriculum expectations related to safety for each program area (Appendix A); and
- ◆ A sample student safety passport for each area that documents the student’s achievement of the knowledge and skills required to operate equipment or safely carry out processes (Appendix B).

In some cases, where the focus of a technological education program may be based on an emphasis course (e.g., auto body), the observation checklist and student safety passport will need to be modified to reflect the safety concerns in the emphasis course.



Technological Safety Checklist

The technological safety checklist is intended to offer principals, vice-principals and supervisory officers an overview of health and safety requirements in technological facilities, and to provide an opportunity for ongoing discussion with teachers. This checklist is not intended to provide a comprehensive assessment of program-specific safety concerns; rather, it can be used to initiate an open and collaborative dialogue between principals and teachers to enhance safety in technological facilities.

Note: The following checklist for technological activities, facilities and instruction has been compiled using a range of resources, including health and safety publications, advice from boards and professional organizations, and consultation with technological educators and health and safety professionals.

Communications Technology	Comments
<p>While on the surface it may appear that safety concerns within communications technology are limited, there are in fact many aspects of the program to consider. For example, a communications technology course with a technical theater approach may require students to work with live wires, extension cords, lighting, ladders and other devices that require safety training.</p> <ul style="list-style-type: none">• Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students.• PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed).• Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin).• All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements.• Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed.	

Communications Technology <i>(continued)</i>	Comments
<ul style="list-style-type: none"> • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, breaker panels and emergency cut-offs are accessible, etc. • Ladders are stored so they do not present trip hazards. • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Computer workstations appear to meet basic ergonomic principles (e.g., computer chairs and desks are used for their intended purpose). 	
Computer Technology	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Aprons or shop coats are clean and well organized so students are encouraged to wear them. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Students and the instructor are dressed appropriately for working safely (e.g., sleeves are not rolled up, no rings or loose jewelry). • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, breaker panels and emergency cut-offs are accessible, etc. • Tools are organized and neatly stored. • Circuit board etching tanks are properly vented. 	

Construction Technology	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, hearing protection, and latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • Aprons or shop coats are clean and organized so the students are encouraged to wear them. • Students and the instructor are dressed appropriately for working safely (e.g., close-toed shoes, sleeves are not rolled up, no rings or loose jewelry). • The overhead hoists have current inspection stickers. • There is a record of all inspections available. • Exit, breaker panels and emergency power cut-offs are all accessible. 	
Green Industries	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. 	

Green Industries <i>(continued)</i>	Comments
<ul style="list-style-type: none"> • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident, e.g., the facility is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • Aprons or shop coats are clean and organized so the students are encouraged to wear them. • Students and the instructor are dressed appropriately for working safely (e.g., closed-toe shoes, sleeves are not rolled up, no rings or loose jewelry). 	
Hairstyling and Aesthetics	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • The tools and equipment used for hair cutting are neatly stored. • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Electrical cords are not frayed or heat damaged. • Students wash their hands thoroughly before and after working on a customer. 	

Health Care	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • Sharps containers are readily available and sharps are disposed of properly. • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Electric beds are kept in their lowest position and unplugged when not in use. • Students are trained in proper lifting posture. Lifting aids are readily available and in good working condition. • Students wash their hands thoroughly before and after patient care procedures. 	
Hospitality and Tourism	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. 	

Hospitality and Tourism <i>(continued)</i>	Comments
<ul style="list-style-type: none"> • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • There is an emphasis on sanitation, especially in food preparation areas e.g., gloves, hair nets and clean aprons are worn, proper hand washing stations and sanitizers are in use. • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Posters that encourage good food preparation and storage practices and cross-contamination prevention are prominently displayed. • Cutting boards are sanitized to prevent cross-contamination. 	
Manufacturing Technology	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, hearing protection, shop coats, leather gloves or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the facility is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the facility is clean and inviting, etc. • Compressed gasses and flammables are stored in separate facilities. 	

Manufacturing Technology <i>(continued)</i>	Comments
<ul style="list-style-type: none"> • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Oily rags are placed in metal, fire-rated containers. • Inspection notices on necessary equipment are accurate and up-to-date. • Gas bottles are securely stored and chained to prevent them from falling. Oxygen and acetylene are stored at least 10 feet apart. 	
Technological Design	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the room is clean and inviting, etc. • Ladders are stored appropriately so they are not trip hazards. • There are sufficient electrical outlets. Electrical outlets do not appear to be overloaded. • Computer workstations appear to meet basic ergonomic principles (e.g., computer chairs and desks are used for their intended purpose). 	

Transportation Technology	Comments
<ul style="list-style-type: none"> • Sufficient and appropriate personal protective equipment (PPE) such as safety glasses, ear protection or latex gloves for handling chemicals is available for all students. • PPE is in good condition (e.g., safety-glass lenses are not scratched or deformed). • Safety glasses are stored in an organized fashion (i.e., not left randomly in a bin). • Aprons or shop coats are clean and organized so the students are encouraged to wear them. • Students and the instructor are dressed appropriately for working safely (e.g., closed toe shoes, sleeves are not rolled up, no rings or loose jewellery). • All materials or chemicals that are stored in secondary containers are clearly identified, as per WHMIS requirements. • Appropriate safety posters or notices that remind students of the use of PPE, health and safety regulations, possible hazards, or safeguards and precautions are prominently displayed. • Good housekeeping practices are evident e.g., the room is well-organized, there are no trip hazards, exits are clearly marked and clear of obstructions, the room is clean and inviting, etc. • All floor jacks are commercially-made products (i.e., not “home made”). • The overhead hoists have current inspection stickers. • All floor hoists have current inspection stickers. • All floor jacks have inspection stickers. • A record of all inspections is available. 	

Appendix A: Program Expectations

Communications Technology

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and apply safe work practices when performing communications technology tasks

Specific Expectations:

By the end of this course, students will:

- D1.1** describe industry hazards (e.g., ergonomic hazards, electrical hazards, mechanical hazards), identify sources of hazard information (e.g., Workplace Hazardous Materials Information System [WHMIS], Passport to Safety), and describe methods of preventing accidents (e.g., safety audits, regular retraining in safety procedures);
- D1.2** demonstrates an understanding of and apply safe work practices when performing communications technology tasks (e.g., use of safe procedures for lighting set-up, cable management, computer operation, and ladder use)

Computer Technology

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of relevant safety practices, standards, and legislation.

Specific Expectations:

By the end of this course, students will:

- D1.1** comply with relevant industry practices, standards, and related legislation to ensure workplace safety (e.g., standards and regulations specified in the Workplace Hazardous Materials Information System [WHMIS] and the Electrical Safety Code; grounding and enclosure standards for electrical circuits; ergonomically sound workplace arrangements and practices);

- D1.2** describe and use appropriate equipment, techniques, and strategies to avoid health and safety problems associated with computer use (e.g., back injuries from improper lifting of heavy equipment, repetitive strain injuries, eye strain).

Construction Technology

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and comply with health and safety regulations and practices specific to the construction industry.

Specific Expectations:

By the end of this course, students will:

- D1.1** describe hazards related to construction materials, processes, tools, and equipment (e.g., toxic or flammable fumes from solvents, paints, varnishes, and gasoline; explosion or burns from propane; lung damage from silica; tripping or falls in unfinished buildings; shock from damaged power tools or electrical equipment), and the precautions that should be taken to avoid these hazards;
- D1.2** outline and comply with health and safety legislation and practices for the construction industry (e.g. Workplace Safety and Insurance Board [WSIB] regulations, provincial labour legislation, Ontario Building Code, local by-laws);
- D1.3** use, handles, and store materials in accordance with Workplace Hazardous Materials Information System (WHMIS) guidelines;
- D1.4** describe the rights and responsibilities of employees (e.g., the right to know, the right to refuse, the right to participate, as outlined in the Occupational Health and Safety Act);
- D1.5** use protective clothing, gear, and equipment appropriately (e.g., dust mask, hard hat, safety glasses, safety harness).

Green Industries

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and apply safe working practices as they relate to the green industries.

Specific Expectations:

- D1.1** identify the personal protective clothing and equipment needed to perform various green industry tasks safely, and use as required to ensure their own and others' safety in the work environment (e.g., eye and ear protection; hand, head, and foot protection; sun protection; equipment guards);
- D1.2** demonstrate an understanding of environmental and site-related hazards (e.g., land conditions; weather conditions; crew competence and organization; presence of utility lines, glass structures, hanging limbs, chicots) and apply appropriate safety measures for avoiding them (e.g., roping off an area, setting up caution signs, removing hazards, implementing traffic control measures);
- D1.3** demonstrate an understanding of and apply safe procedures for using and maintaining materials, tools, and equipment (e.g., avoid moving parts and pinch points; perform a circle check of vehicles and equipment; check condition of materials, hydraulic systems, and protective equipment; check oil and fuel levels);
- D1.4** demonstrate an understanding of and apply safe procedures for handling plants and/or animals (e.g., dethorning plants, using ergonomic lifting techniques or devices, using hand protection, securing loads correctly for transport, understanding animal perception, avoiding actions that startle animals, using chutes and restraining devices);
- D1.5** identify potentially hazardous situations in the workplace by conducting and documenting personal and workplace safety audits;
- D1.6** identify sources of information about workplace hazards and how to avoid them (e.g., Workplace Hazardous Materials Information System [WHMIS], Passport to Safety);
- D1.7** outline and comply with legislation for protecting the health and safety of workers in the green industries (e.g., Occupational Health and Safety Act, local by-laws, fire prevention regulations).

Hairstyling and Aesthetics

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** apply health and safety standards related to the use of hairstyling and aesthetics equipment, materials, and techniques and the maintenance of a safe work environment.

Specific Expectations:

By the end of this course, students will:

- D1.1** identify and describe key aspects of the laws, regulations, and regulatory/oversight bodies that govern the hairstyling and aesthetics industry (e.g., the Occupational Health and Safety Act, the Workplace Hazardous Materials Information System [WHMIS], the Apprenticeship and Certification Act [Restricted Skill Sets], the Food and Drugs Act – Cosmetic Regulations; the Canadian Centre for Occupational Health and Safety);
- D1.2** use safe and sanitary work practices to prevent the spread of pathogens and protect their own and others' health (e.g., sanitize, disinfect, and/or sterilize implements and equipment; work in a well-ventilated space; wear safety glasses and appropriate clothing; handle products correctly; practise good posture and apply ergonomic principles; wash hands frequently; use deodorant regularly);
- D1.3** demonstrate an understanding of procedures to ensure safe and productive work practices in the hairstyling and aesthetics workplace (e.g., using a checklist to keep track of tools and equipment; developing and following routines/protocols for the correct use of scissors, curling irons, electric cords, waxing heaters, autoclave, glass bead sterilizer, steamer, chemicals);
- D1.4** identify emergency situations that might occur in salon/spa settings (e.g., cuts, burns, electrocution, allergic reactions, epileptic seizures, diabetic shock) and describe appropriate responses and/or first aid treatments.

Health Care

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and comply with safe working practices and the laws and regulations governing the health and safety of workers in the health care industry.

Specific Expectations:

By the end of this course, students will:

- D1.1** identify and comply with legislation, regulations, standards, and requirements pertaining to worker safety in the health care workplace (e.g., Occupational Health and Safety Act [OHSA], Workplace Hazardous Materials Information System [WHMIS]);
- D1.2** demonstrate an understanding of and apply procedures to ensure safe and productive work practices in the health care workplace (e.g., use tools and equipment safely as outlined in safety manuals, operating instructions, and institutional requirements; conduct a safety inspection or audit of a facility; use a checklist to keep track of tools and equipment);
- D1.3** use protective clothing and equipment as required to keep themselves and others safe and free from harm.

Hospitality and Tourism

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and compliance with health and safety standards in the various sectors of the tourism industry.

Specific Expectations:

By the end of this course, students will:

- D1.1** identify the laws, regulations, and regulatory/ oversight organizations that govern health, safety, and sanitary standards in the tourism industry (e.g., Occupational Health and Safety Act [OHSA], Health Protection and Promotion Act [HPPA], Workplace Hazardous Materials Information System [WHMIS] regulations, local health departments) and explain their importance;

- D1.2** demonstrate an understanding of emergency preparedness (e.g., develop an emergency exit plan, ensure all safety equipment is clearly identified and easily accessible and that equipment lockout rules are posted) and procedures to be followed (e.g., regarding equipment power shut-off, the use of fire-suppression equipment) in the event of an accident or emergency situation;
- D1.3** demonstrate the ability to follow health and safety best practices (e.g., report unsafe work conditions in the school classroom/facility; use the Workplace Hazardous Materials Information System [WHMIS]; know appropriate first aid procedures to be used in the event of an accident such as a burn, cut, or electric shock);
- D1.4** demonstrate the use of safe food handling and proper sanitary practices (e.g., prevent cross contamination of foods; keep their person and uniform clean; wear hair nets; observe good housekeeping practices, safe lifting practices);
- D1.5** use protective clothing and equipment as required to ensure their own and others' safety
- D1.6** identify and describe health and safety issues that must be considered in the workplace (e.g., issues concerning trip and fall, exposure to chemicals, the effects of fatigue, and long-term ergonomic considerations).

Manufacturing Technology

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate an understanding of and compliance with the health and safety legislation, standards, and practices that are essential to the safe operation of a manufacturing facility.

Specific Expectations:

By the end of this course, students will:

- D1.1** identify and explain the importance of the specific components of legislation and standards related to workplace safety in the manufacturing industry (e.g., Occupational Health and Safety Act [OHSA], Workplace Hazardous Materials Information System [WHMIS]) and the specific responsibilities of the relevant oversight/regulatory organizations (e.g., Workplace Safety and Insurance Board [WSIB], Industrial Accident Prevention Association [IAPA]);

- D1.2** demonstrate good housekeeping practices in the work environment (e.g., cleaning up spills and leaks, keeping areas clean and clear of obstructions, properly organizing tools and equipment);
- D1.3** handle materials safely and appropriately in compliance with the information included in the Material Safety Data Sheets (MSDS) from the Workplace Hazardous Materials Information System (WHMIS);
- D1.4** demonstrate an understanding of procedures to ensure safe and productive work practices in the manufacturing workplace (e.g., perform safety inspections and audits that include ergonomic considerations related to workshop layout and set-up, material handling, ease of movement, lighting, workstation set-up);
- D1.5** demonstrate the safe use of tools and equipment in compliance with safety manuals, instructions, and institutional requirements;
- D1.6** use proper ventilation and/or filtration systems to control air quality (e.g., to minimize the effects of welding fumes, plastic off-gassing, cutting-fluid misting, heat treating of metal);
- D1.7** use protective clothing and equipment as required to ensure their own and others' safety in the work environment.

Technological Design

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** describe and apply health, safety, and environmental practices related to technological design.

Specific Expectations:

By the end of this course, students will:

- D1.1** describe the importance of health and safety laws, regulations, and standards that apply to technological design (e.g., regulations and standards from the Occupational Health and Safety Act, Canadian Standards Association [CSA], Ontario Building Code, and Workplace Hazardous Materials Information System [WHMIS]);
- D1.2** adhere to appropriate personal and environmental health and safety standards and procedures with respect to processes, materials, tools, equipment, and facilities throughout the design process and when performing related activities (e.g., use protective equipment; set tool and equipment guards properly; ensure adequate ventilation and ergonomic seating and other

workplace arrangements; follow safe operating procedures; keep work areas clean and organized; store materials and dispose of wastes properly);

- D1.3** use protective clothing, gear, and equipment appropriately (e.g., dust mask, safety glasses).

Transportation Technology

OVERALL EXPECTATIONS:

By the end of this course, students will:

- D1.** demonstrate the use of professional work practices and procedures and compliance with occupational health and safety regulations and standards.

Specific Expectations:

By the end of this course, students will:

- D1.1** identify and explain the importance of legislation and regulations related to procedures and operations used in transportation technology facilities (e.g., Occupational Health and Safety Act [OHSA]; regulations and standards outlined in the Workplace Hazardous Materials Information System [WHMIS]; Apprenticeship and Certification Act [ACA]);
- D1.2** demonstrate good housekeeping and safety practices in the work environment (e.g., cleaning up spills and leaks, keeping areas clean and clear of obstructions);
- D1.3** use protective clothing and equipment (e.g., eye protection, gloves, breathing mask) as required to ensure their own and others' safety in the work environment;
- D1.4** identify potential health risks (e.g., brake dust, fumes from brake fluid and brake cleaner) when servicing vehicles or craft, and demonstrate the use of safe procedures to mitigate these hazards (e.g., use appropriate ventilation and breathing protection);
- D1.5** describe and demonstrate the ability to follow appropriate safety precautions required for new technologies when working on vehicles, craft, or power equipment (e.g., precautions regarding high current and voltage, capacitor discharge rate of supplemental restraint systems, extreme temperature of exhaust systems);
- D1.6** demonstrate an understanding of professional responsibilities in the transportation industry with regard to personal and public safety (e.g., quality workmanship, integrity, customer service, compliance with manufacturers' standards).

Appendix B: Sample Student Safety Passports

The student passport is an accurate record for both the student and the teacher of the safety training the student has received in the use of each tool, machine or piece of equipment.

Communications Technology: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student demonstrates the safe use of fixed and portable lighting systems by:</p> <ul style="list-style-type: none"> • securing lighting instrument firmly to the grid, using safety chains and twist lock plugs, or securely mount on stands and dollies • making sure the light is switched "OFF" before connecting the power supply • disconnecting the electrical supply to the instrument before changing a bulb, making adjustments or relocating the instrument • inspecting lighting instruments before using them (e.g., replacing burned out bulbs, frayed cords, switches and loose electrical plugs; using appropriate gauge wire and CSA approved products) • installing bulbs that are appropriate for the instrument • keeping hands away from a hot instrument (e.g., by wearing gloves when removing and replacing bulbs) • using two hands to position and focus the instrument • keeping all cords clear of traffic areas during use • ensuring hands and floor are dry before touching lighting equipment • disconnecting the electrical source before attempting to remove or protect wet lighting equipment. 			

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student is able to assess the safety of a ladder by identifying:</p> <ul style="list-style-type: none"> • missing or loose steps or rungs • damaged or worn non-slip feet • loose nails, screws, bolts or nuts • loose or faulty spreaders, locks and other metal parts in poor repair • rot, decay or warped rails in wooden ladders • cracks and exposed fiberglass in fiberglass ladders • cracked, split, worn or broken rails, braces, steps or rungs • sharp edges on rails and run • rough or splintered surfaces • corrosion, rust, oxidation and excessive wear, especially on treads • ladders are checked for distortion by sighting along the rails • missing identification labels. 			
<p>The student is able to properly set up a ladder, keeping the 4:1 ratio and ensuring that at least 1 metre of the ladder extends beyond the upper platform on which the ladder rests.</p>			
<p>The student can determine when to use an extension ladder instead of a step ladder.</p>			

Computer Technology: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student is able to safely work on CPU's and peripheral systems wearing safety glasses</p> <ul style="list-style-type: none"> • making sure the equipment is switched "OFF" before connecting the power supply • disconnecting electrical supply to the instrument before changing a bulb, making adjustments or relocating • inspecting instruments before using them and replacing burned out bulbs, frayed cords, switches and loose electrical plugs. • using appropriate gauge wire and CSA approved products. • installing bulbs that are appropriate for the instrument • keeping hands away from a hot instrument (e.g., by wearing gloves when removing and replacing bulbs) • using two hands to position and focus the instrument • keeping all cords clear of traffic areas during use. • ensuring hands and floor are dry before touching lighting equipment. • disconnecting electrical source before attempting to remove or protect wet lighting equipment. 			
<p>The student handles wire cutters in a safe and efficient manner.</p>			
<p>The student works at soldering stations in a safe and efficient manner.</p>			
<p>The student follows the appropriate precautions when handling hazardous chemicals used in the etching of circuit boards.</p>			

Construction Technology: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student can safely assess if electric, battery and pneumatic powered tools are in proper working condition and safe to use if:</p> <ul style="list-style-type: none"> the tool is disconnected from power source and switched "OFF" before assessing its condition cords, lines and hoses are free of frays or bulges moving parts are properly lubricated the air compressor is set to an appropriate pressure for tool being used cutting tools are properly sharpened. 			
The student understands the importance of, and can properly operate the dust collection system.			
Band Saws			
Bench Grinders			
Pedestal Grinders			
Jointers			
Planers			
Radial Arm Saws			
Router Table			
Sanders			
Shapers			
Table Saws			
Wood Turning Lathes			
Belt Sanders			
Circular Saws			
Drills			
Planers			
Routers			

Equipment	Date Competency Display	Student Signature	Teacher Signature
Sabre Saws			
Jig Saws			
Reciprocating Saws			
Pneumatic Tools			
Pneumatic Nailing Tools			
Stapling Tools			
Powder-Actuated Tools			

Green Industries: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student can safely assess if electric, battery and pneumatic powered tools are in proper working condition and safe to use if:</p> <ul style="list-style-type: none"> • the tool is disconnected from power source and switched "OFF" before assessing condition • cords, lines and hoses are free of frays or bulges • moving parts are properly lubricated • the air compressor is set to an appropriate pressure for tool being used • cutting tools are properly sharpened. 			
<p>The student can demonstrate an understanding of and apply safe procedures for:</p> <ul style="list-style-type: none"> • using and maintaining materials, tools and equipment • checking the condition of materials, hydraulic systems and protective equipment • checking oil and fuel levels. 			

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student is able to assess the safety of a ladder by identifying the following:</p> <ul style="list-style-type: none"> • missing or loose steps or rungs • damaged or worn non-slip feet • loose nails, screws, bolts or nuts. • loose or faulty spreaders, locks and other metal parts in poor repair • rot, decay or warped rails in wooden ladders • cracks and exposed fiberglass in fiberglass ladders • cracked, split, worn or broken rails, braces, steps or rungs • sharp edges on rails and rungs • rough or splintered surfaces • corrosion, rust, oxidation and excessive wear, especially on treads • distortion by sighting along the rails • missing identification labels. 			
<p>The student can determine when to use an extension ladder instead of a step ladder.</p>			
<p>The student is able to properly set up a ladder, keeping the 4:1 ratio and ensuring that at least 1 metre of the ladder extends beyond the upper platform on which the ladder rests.</p>			
Lawn mowers			
Tampers			
Garden tractors			
Roto tillers			
Leaf Blower			
Mulcher			
Wood Chipper			
Hedge Trimmer			
Line Trimmer			
Power Sprayer			
Chain Saw			

Equipment	Date Competency Display	Student Signature	Teacher Signature
Hand Truck or Dolly			
Wheel Barrow			
Rakes (The students ensures that the rakes do not pose a trip hazard.)			

Hairstyling and Aesthetics: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
The student is able to assess that equipment is in proper working condition prior to use by ensuring that: <ul style="list-style-type: none"> the equipment is disconnected from power source and power switch is in "OFF" position electrical cords are in good condition (i.e. not frayed, proper gauge, not overloaded). 			
Wall-mounted Hair Dryers			
Hydraulic Chairs			
Antiseptics			
Sanitizers			
Disinfectants			
Ultra-violet-ray Sanitizer			
Flat Irons			
Curling Irons – stored appropriately to eliminate burns			
Hot Rollers			
Hair Clippers			
Hair Trimmers			
Shears			

Equipment	Date Competency Display	Student Signature	Teacher Signature
Stove Irons			
Scissors			
Waxing Heaters			
Glass Bead Sterilizer			
Steamer			
Washer/Dryer (The student can explain how often the lint exhaust is cleaned to prevent fire hazard.)			

Health Care: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
Wheelchair			
Hospital Bed			
Patient-lifting Devices			
Walker			
The student practices proper hand washing procedures.			

Hospitality and Tourism: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student is able to assess that equipment is in proper working condition prior to use by ensuring that:</p> <ul style="list-style-type: none"> • equipment is disconnected from power source and power switch is in "OFF" position • electrical cords are in good condition (i.e., not frayed, proper gauge, not overloaded) • natural gas and propane lines and hoses are free of kinks and obstructions and are not frayed or leaking. 			
Deep Fryers			
Pressure Equipment			
Stove			
Range			
Oven			
Griddles			
Grills			
Mixer			
Broiler			
Knives			
Meat Slicer			

Manufacturing Technology: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student safely assesses if electric, battery and pneumatic powered tools are in proper working condition and safe to use by ensuring that:</p> <ul style="list-style-type: none"> • the tool is disconnected from power source and switched "OFF" before assessing condition • cords, lines and hoses are free of frays or bulges • moving parts are properly lubricated • the air compressor is set to an appropriate pressure for tool being used • cutting tools are properly sharpened • regulators are properly inspected and in good condition. 			
Air Compressor			
Vertical Band Saw			
Horizontal Band Saw			
Drill Press			
Pedestal Grinder			
Bench Grinder			
Surface Grinder			
Lathe			
Vertical Mill			
Horizontal Mill			
Hack Saw			
MIG Welder			
TIG Welder			
Stick Welder			
Plasma Cutter			
Oxy Acetylene Torch			

Technological Design: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
Multimedia workstations			
PC-based digital editing workstations			
Desktop publishing workstations			
PCs for internet access, word processing			

Transportation Technology: Sample Student Safety Passport

Student's Name _____ Class and Year _____

Equipment	Date Competency Display	Student Signature	Teacher Signature
<p>The student safely assesses if electric, battery and pneumatic powered tools are in proper working condition and safe to use by ensuring that:</p> <ul style="list-style-type: none"> • the tool is disconnected from power source and switched "OFF" before assessing condition • cords, lines and hoses are free of frays or bulges • moving parts are properly lubricated • the air compressor is set to an appropriate pressure for tool being used • cutting tools are properly sharpened • regulators are properly inspected and in good condition. 			
Hydraulic Lift			
Floor Jack			
Tire Machine			
Glass Beading Cabinet			
Oxy Acetylene Torch			

Equipment	Date Competency Display	Student Signature	Teacher Signature
MIG Welder			
TIG Welder			
Stick Welder			
Engine hoist			
Transmission Jack			
Bottle Jack			
Plasma Cutter			
Impact Wrench			
Vertical Polisher			
Ratchet Wrench			
Orbital Sander			
Finishing Sander			
Palm Grip Impact Wrench			
Angle Polisher			
Air Chest			
Straight-line Sander			
Angle Head Impact Wrench			
Drill			
Spray Gun			
Angle Grinder			
Horizontal Grinder			
Vertical Grinder			
Cut-off Grinder			
Die Grinder			
Needle Scaler			
Metal Sheer			
Power Riveter			

Equipment	Date Competency Display	Student Signature	Teacher Signature
Air Hacksaw			
Reciprocating Saw			
Air Compressor			

