

Forestry

Required Components for the SHSM—Forestry

1. A bundle of nine Grade 11 and Grade 12 credits that comprises:
 - four forestry major credits
 - three other required credits from the Ontario curriculum, in English, mathematics, and a choice of science or Canadian and world studies
 - two cooperative education credits tied to the sector
2. Seven sector-recognized certifications and/or training courses/programs (four compulsory and a choice of three electives)
3. Experiential learning and career exploration activities within the sector
4. Reach ahead experiences connected with the student's postsecondary plans
5. Development of Essential Skills and work habits required in the sector, and documentation of them using the OSP

Profile of the Forestry Sector

The Canadian forest products industry is a major generator of employment in both rural and urban Canada. Canada's forests, sawmills and pulp and paper facilities directly employ close to 238,200 Canadians. Factoring in employment from related industries such as construction, chemicals, engineering and transportation the Canadian forest product industry supports over 604,300 direct and indirect jobs. The forest products industry is also the largest employer of Aboriginal peoples employing over 17,000 and depends upon 1400 Aboriginal businesses for its day to day operations.¹

INSIGHT

The requirements of this SHSM are unique and are geared to the forestry sector. However, the design of all SHSM programs follows a consistent model, described in **Section A: Policy**.

Ontario is blessed with vast, sustainable, managed forests, the foundation of a forest products industry that manufactures high-quality products for world markets, such as specialty grade papers, engineered wood products, and composite building products. In 2009 the industry generated sales of \$54 billion; representing 11% of Canada's manufacturing GDP.²

1 <http://www.fpac.ca/index.php/en/industry-update/>

2 <http://www.fpac.ca/index.php/en/industry-update/>

Occupations in the Forestry Sector

The following table provides examples of occupations in the forestry sector, with corresponding NOCs, sorted according to the type of postsecondary education or training the occupations would normally require.

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See **Section A1.6** for more on occupations and NOCs.



Apprenticeship Training	College
<ul style="list-style-type: none"> • Arborist 2225 	<ul style="list-style-type: none"> • Forest Engineering Technician/Technologist 2223 • Forest Inventory Resource Officer 2223 • Forest Products Technologist 2211 • Forest Resource Technician 2223 • GIS Technician/Technologist 2255
University	Workplace
<ul style="list-style-type: none"> • Forest Ecologist 2121 • Forester 2122 • Forestry Engineer 2122 • Project Management – Forester 2122 • Surveyor 2131 	<ul style="list-style-type: none"> • Brush Cutter – Forestry 8422 • Cone Harvester/Harvest Hand 8432 • Forest Firefighter 8422 • Forest Worker 8421 • Mechanical Harvester Operator – Logging 8421 • Saw Filer/Fitter 7383 • Silviculture Worker 8422 • Spacing Saw Operator – Forestry 8422 • Tree Planter 8616

Note: Some of the names of occupations in this table may differ slightly from the names given in the National Occupation Classification system. The names listed here reflect common usage by institutions and organizations in this sector in Ontario.

Postsecondary Programs and Training in the Forestry Sector

The following are examples of programs and training related to careers in the forestry sector and the accreditations associated with each.

Apprenticeship Training

Arborist	Certificate of apprenticeship/ certificate of qualification
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College

Arboriculturist	Diploma
Enforcement Officer – Forestry	Diploma
Extension Ranger – Forestry	Diploma
Field Naturalist	Diploma
Forest Fire Technician	Diploma
Forestry Technician	Diploma
Geomatics/GIS Technician	Diploma

University

Forestry Engineer	Bachelor's degree
Project Management – Forester	Bachelor's degree

Training for the Workplace

Brusher	Certificate
Cone Harvester	Certificate
Forestry Worker	Certificate
Saw Filer/Fitter	Certificate
Spacer	Certificate
Tree Planter	Certificate

Required Components for the SHSM–Forestry

The SHSM–Forestry has the following five required components:

1. A bundle of nine Grade 11 and Grade 12 credits

These credits make up the bundle:

- four forestry major credits that provide sector-specific knowledge and skills
- three other required credits from the Ontario curriculum, in English, mathematics, and science or Canadian and world studies, in which some expectations are met through learning activities contextualized to the forestry sector
- two cooperative education credits that provide authentic learning experiences in a workplace setting, enabling students to refine, extend, apply, and practise sector-specific knowledge and skills

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See **Section A1.2** for more on SHSM credits.

Credits		Apprenticeship Training		College		University		Workplace	
		Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12
Forestry Major		2	2	2	2	2	2	2	2
includes content delivered in the sector's context	English	1		1		1			1
	Mathematics		1		1		1	1	
	Canadian and World Studies or Science	1		1		1		1	
Cooperative Education		2		2		2		2	
Total number of credits		9		9		9		9	

Note: Multiple credits in the Ontario technological education curriculum allow additional instructional time for the practice and refinement of skills needed to develop student performance to the levels required for certification, entry into apprenticeship programs, or participation in school–work transition programs (see *The Ontario Curriculum, Grades 11 and 12: Technological Education, 2009*, page 17).

2. Seven sector-recognized certifications and/or training courses/programs

The SHSM in forestry requires students to complete seven sector-recognized certifications and/or training courses/programs. Of these, four are compulsory and the remaining three are electives that must be chosen from the list in the following table. Note that items in the table that are capitalized are the proper names of specific certifications or training courses/programs that are appropriate for the SHSM. Items that are lowercased are names of the areas or categories within which specific certifications or training courses/programs should be selected by the school or board.

The requirements are summarized in the table below.

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See **Section A1.3** for more on SHSM certifications and training.

Four compulsory			
Cardiopulmonary Resuscitation (CPR) Level A	compass/map/global positioning system (GPS)	generic (i.e., not site-specific) instruction about the Workplace Hazardous Materials Information System (WHMIS)	Standard First Aid
Three electives from the list below			
all-terrain vehicle (ATV) safety	bear safety	chainsaw safety	fall protection
harvesting equipment safety	health and safety – basic	hoisting and rigging	personal protective equipment – forestry
professional cable skidding	propane safety	safe tree cutting and logging	skidder/loader safety
suspended access equipment	wilderness first aid		

3. Experiential learning and career exploration activities

Experiential learning and career exploration opportunities relevant to the sector might include:

- one-on-one observation of a cooperative education student at a placement in the forestry sector (example of job twinning)
- a day-long observation of staff at a lumber yard (example of job shadowing)
- a one- or two-week work experience with a member of an industry association or a professional in the sector (example of work experience)
- participation in a local, provincial, or national Skills Canada competition
- a tour of a forestry industry workplace (e.g., a saw mill)
- a volunteer experience planting trees as part of a community initiative
- attendance at a forestry sector trade show, conference, or job fair.

FIND IT!

See **Section A1.4** for more on experiential learning and career exploration activities.



POLICY

Note that volunteer activities in an SHSM cannot be counted towards the hours of community involvement required to earn the OSSD.



4. Reach ahead experiences

Students are provided one or more reach ahead experiences – opportunities to take the next steps along their chosen pathway – as shown in the following examples:

- Apprenticeship: visiting an approved apprenticeship delivery agent in the sector
- College: interviewing a college student enrolled in a sector-specific program
- University: observing a university class in a sector-related program
- Workplace: interviewing an employee in the sector

FIND IT!

See **Section A1.5** for more on reach ahead experiences.



5. Essential Skills and work habits and the OSP

Students will develop Essential Skills and work habits required in the sector and document them using the OSP, a component of the SHSM.

FIND IT!

See **Section A1.6** for more on Essential Skills and work habits.



Pathways for the SHSM–Forestry

A table illustrating the four pathways and required credits leading to completion of this SHSM is provided below. You will also find tables illustrating sample bundles of credits, and other useful resources, on the ministry's SHSM website.

Awareness building (Grades 7 and 8)

See **Section 5.5** for information on building awareness of SHSM programs among students in Grades 7 and 8.

Exploration (Grades 9 and 10)

See **Section 5.5** for information on providing Grade 9 and 10 students with opportunities for exploration of SHSM programs. In addition, students considering this SHSM can be encouraged to enrol in the following courses to become better informed about careers and postsecondary options in the sector:

- Exploring Technologies: This Grade 9 course is recommended for all students following SHSM pathways that have a technological education focus. The course provides students with opportunities to explore a variety of technologies, including forestry sector technology, by engaging in activities related to them.
- Career Studies (compulsory) and Discovering the Workplace: Some of the expectations in these Grade 10 courses provide opportunities for students to explore occupations and other postsecondary options in the sector and to participate in experiential learning activities.
- Green Industries or Transportation Technology: These course are recommended for any Grade 10 student who is considering enrolling in an SHSM–Forestry program.

TOOLS AND RESOURCES

Visit the ministry's SHSM website at www.edu.gov.on.ca/eng/teachers/studentsuccess/specialist.html for:

- sample bundles of credits specific to this SHSM
- a list of organizations and resources specific to this SHSM.



Specialization (Grades 11 and 12)

Students acquire the sector-specific knowledge and technical skills required to earn their OSSD with an SHSM–Forestry by completing its five required components. Students and their parents/guardians are encouraged to consult with guidance counsellors and teachers to select the courses that will enable students to pursue their goals.

Forestry sector representatives have identified knowledge of entrepreneurship and basic business practices as important for students as they prepare for careers in this sector. Therefore, it is recommended that in Grade 11 or 12 students do one of the following:

- complete an entrepreneurship course offered in the Ontario business studies curriculum
- pursue an extracurricular activity focused on entrepreneurship (e.g., Junior Achievement’s Company Program)

Students pursuing an apprenticeship pathway should consider OYAP, which enables them to start an apprenticeship while earning their OSSD.

Students pursuing a university pathway are advised to complete their required cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

When helping students plan their SHSMs, particularly with respect to the selection of courses to fulfil the requirement for credits in the major, teachers should bear in mind that technological education courses can be offered as single-credit or multiple-credit courses.

Program pathways: SHSM–Forestry

- Shaded boxes – required credits in the bundle for the SHSM–Forestry
- (C) – compulsory credit for the OSSD

Grade 9: <i>Exploration</i>	Grade 10: <i>Exploration</i>	Apprenticeship Training Pathway: <i>Specialization</i>		College Pathway: <i>Specialization</i>		University Pathway: <i>Specialization</i>		Workplace Pathway: <i>Specialization</i>	
		Grade 11	Grade 12	Grade 11	Grade 12	Grade 11	Grade 12	Grade 11	Grade 12
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English
(C) Mathematics	(C) Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics	(C) Mathematics	Mathematics
(C) Science	(C) Science	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12	Science or Canadian and World Studies in either Gr. 11 or Gr. 12
(C) Geography of Canada	(C) Canadian History	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major
(C) Core French	(C) Career Studies/ Civics	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major	Forestry Major
(C) Healthy Active Living Education	(C) The Arts	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12
Exploring Technologies	Green Industries or Transportation Technology	Geography or an optional or a compulsory credit	Business Studies or Cooperative Education or an optional credit	Geography or an optional or a compulsory credit	Business Studies or Cooperative Education or an optional credit	Science	Mathematics	Geography or an optional or a compulsory credit	Business Studies or Cooperative Education or an optional credit