

# COURSE CURRICULUM AND ASSESSMENT STANDARDS:

## SECTION D: INTRODUCTORY LEVEL

The following pages define the curriculum and assessment standards for the introductory level of Forestry.

Introductory level courses help students build daily living skills and form the basis for further learning. Introductory courses are developed for students who have no previous experience in the strand.

General outcomes define the competencies a student must demonstrate to achieve success in a course. Assessment standards define the criteria and conditions to be used for assessing the competencies defined in the general outcomes.

Specific outcomes provide a detailed framework for instruction to help students build the competencies defined in the general outcomes. Additional information and suggestions for instruction are provided in the Notes column; teachers may wish to use this space to record their ideas for instruction or student projects.

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**COURSE FOR1010: WHY FORESTRY?****Level:** Introductory**Theme:** Social and Cultural Perspectives**Prerequisite:** None**Description:** Students explain the social, economic and environmental significance of forests, describe the impact of individuals on forests, and identify career opportunities in forestry.**Parameters:** Access to relevant government, industry and community resources.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>describe the social, economic and environmental significance of forests</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>identifying and explaining six or more ways in which local forests (regional or provincial) have: <ul style="list-style-type: none"> <li>social and cultural significance; e.g., recreational, spiritual, aesthetic, medicinal</li> <li>economic significance; e.g., employment, product export, tourism, subsistence, tax base</li> <li>environmental significance; e.g., air, water and soil cycles.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Knowledge/Application Assessment: Significance of Forests, FOR1010-1</i>  <i>Sample Timeline: Forestry in North America, FOR1010-2</i></p> <p><i>Standard</i>  <i>Respond to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>a comprehensive list of forest products and services.</li> </ul> <p><i>Standard</i>  <i>Identify and describe 20 products and 10 services derived from Canadian forests</i></p>	40



**COURSE FOR1010: WHY FORESTRY?** (continued)

Concept	Specific Outcomes	Notes
Forest Role	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• present a historical perspective on the social and cultural significance of forests; e.g.:               <ul style="list-style-type: none"> <li>– recreational</li> <li>– spiritual/aesthetic</li> <li>– medicinal</li> <li>– community dependence</li> </ul> </li> <li>• describe the economic significance of forests at local, national and global levels; e.g.:               <ul style="list-style-type: none"> <li>– direct and indirect employment</li> <li>– forest products and export values</li> <li>– tourism</li> <li>– subsistence</li> <li>– tax base</li> </ul> </li> <li>• describe the environmental significance of forests at local, national and global levels; e.g.:               <ul style="list-style-type: none"> <li>– wildlife and fisheries habitat</li> <li>– watershed protection and maintenance</li> <li>– water, air and soil quality</li> <li>– maintenance of ecosystems</li> <li>– climate change.</li> </ul> </li> </ul>	<p>Interview people for whom the forest has historical significance; e.g., senior citizens, aboriginal groups.</p> <p>Monitor the performance of forest industry in the stock market.</p> <p>Interview local industry representatives.</p> <p>Visit a local sawmill.</p> <p>Contact the Canadian Forestry Service (Natural Resources Canada) for current resource materials (see Section I: Learning Resource Guide).</p> <p>See <i>Alberta's Focus on Forests</i> (Activity 4.2–Products From Canadian Forests).</p>
Personal Impact	<ul style="list-style-type: none"> <li>• describe the impact of individual attitudes, actions and lifestyle on the forest resource; e.g.:               <ul style="list-style-type: none"> <li>– conservation ethic</li> <li>– preservation ethic</li> <li>– consumer practices</li> <li>– recreational patterns</li> </ul> </li> <li>• describe how consumer and marketing trends in society may affect the forest resource; e.g.:               <ul style="list-style-type: none"> <li>– needs versus wants</li> <li>– media exaggeration</li> <li>– use of environmental friendly products</li> </ul> </li> </ul>	<p>Conduct interviews with foresters, ranchers, environmentalists, etc. Summarize their views regarding conservation, preservation and sustainable management of forests.</p> <p>Prepare an inventory of household materials used each day. How many of these materials are derived from the forest resource?</p> <p>Distinguish between wants and needs. Analyze the impact of television advertisements.</p>

**COURSE FOR1010: WHY FORESTRY?** (continued)

Concept	Specific Outcomes	Notes
<p>Personal Impact (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• propose personal strategies for using forests wisely that foster the attainment of social, cultural, economic and environmental goals; e.g.:               <ul style="list-style-type: none"> <li>– personal actions</li> <li>– leadership roles.</li> </ul> </li> </ul>	<p>Analyze and debate a controversial issue.</p> <p>Contact the Environmental Law Centre for resources that support issue analysis and conflict resolution.</p> <p>Plan and implement a paper recycling project at home and/or school.</p>
<p>Career Opportunities</p>	<ul style="list-style-type: none"> <li>• research potential careers and the range of occupational opportunities within the forestry sector:               <ul style="list-style-type: none"> <li>– professional</li> <li>– technical</li> <li>– labour-based</li> </ul> </li> <li>• describe employment statistics within one or more areas of specialization; e.g.,               <ul style="list-style-type: none"> <li>– types of careers</li> <li>– number of workers</li> <li>– employment trends</li> </ul> </li> <li>• infer career opportunities and trends from employment statistics</li> <li>• infer impacts of the marketplace on employment opportunities</li> <li>• predict possible forest industries in the future, and resulting career opportunities.</li> </ul>	<p>Interview people employed in the forestry sector. Identify general areas of specialization; e.g.:</p> <ul style="list-style-type: none"> <li>• resource inventory</li> <li>• biology/ecology</li> <li>• resource protection</li> <li>• resource harvest</li> <li>• forest products</li> <li>• environmental management</li> <li>• recreation</li> <li>• education.</li> </ul> <p>Review National Occupational Profiles (NOC).</p> <p>Contact the “Career Hotline” (telephone 1-800-661-3753).</p> <p>Contact senior management people in the forest industry; also producers of value-added products.</p>

**COURSE FOR1020: FOREST REGIONS OF CANADA****Level:** Introductory**Theme:** Social and Cultural Perspectives**Prerequisite:** None**Description:** Students identify factors that determine the distribution of forests, as well as research forest regions of Canada with an emphasis on specific species and forest associations found in Alberta.**Parameters:** Access to relevant government and library resources.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>identify factors that determine the type and distribution of forests</li> </ul>	<p><i>Assessment of student assessment will be based on:</i></p> <ul style="list-style-type: none"> <li>conducting laboratory and/or field investigations to determine the effect of temperature, moisture or soil on plant growth.</li> </ul> <p><i>Assessment Tool</i> <i>Lab Investigations: Factors Affecting Plant Growth, FOR1020-1</i></p> <p><i>Standard</i> <i>Complete lab and/or field investigations to a standard of 1 on the rating scale</i></p>	20
	<ul style="list-style-type: none"> <li>explaining ways in which climate and land form affect the growth and distribution of forests.</li> </ul> <p><i>Assessment Tool</i> <i>Knowledge/Application Assessment: Growth and Distribution of Forests, FOR1020-2</i></p> <p><i>Standard</i> <i>Respond to a standard of 1 on the rating scale</i></p>	10
	<ul style="list-style-type: none"> <li>locate and describe the forest regions of Canada</li> </ul> <ul style="list-style-type: none"> <li>given outline maps of Canada and Alberta, locating and describing: <ul style="list-style-type: none"> <li>the eight forest regions of Canada and major tree species within each region</li> <li>the three forest regions present in Alberta and major tree species within each region.</li> </ul> </li> </ul> <p><i>Assessment Tool</i> <i>Task Checklist for Mapping, FORMAP</i></p> <p><i>Standard</i> <i>Complete applicable mapping tasks to a standard of 1 on the rating scale</i></p>	30



**COURSE FOR1020: FOREST REGIONS OF CANADA** (continued)

Concept	Specific Outcomes	Notes
Determining Factors (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• describe relationships between land forms and the distribution of forests; e.g.:               <ul style="list-style-type: none"> <li>– topography</li> <li>– soil conditions</li> </ul> </li> <li>• identify reasons for the distribution of trees in natural regions in Canada and Alberta.</li> </ul>	Identify concentrations of particular tree species on a map of a local area. Suggest reasons for the distributions noted.
Forest Regions	<ul style="list-style-type: none"> <li>• locate and describe the eight forest regions of Canada; e.g.:               <ul style="list-style-type: none"> <li>– Boreal</li> <li>– Subalpine</li> <li>– Montane</li> <li>– Coast</li> <li>– Columbia</li> <li>– Deciduous</li> <li>– Great Lakes/St. Lawrence</li> <li>– Acadian</li> </ul> </li> <li>• read, interpret and create visual representations of species distribution in Canada and Alberta.</li> </ul>	<p>See <i>Alberta's Focus on Forests</i> (Activity 4.1– Trees of Alberta and Canada).</p> <p>Obtain the <i>Forest Regions of Canada</i> poster series (Canadian Forestry Service) and the <i>Natural Regions of Alberta</i> poster series (Alberta Environmental Protection).</p> <p>Match common trees with their respective locations.</p> <p>Discuss Alberta's six natural regions.</p> <p>Provide relevant mapping exercises.</p>
Tree Identification	<ul style="list-style-type: none"> <li>• identify common trees and other plants that grow in specific regions of Canada and Alberta; e.g.:               <ul style="list-style-type: none"> <li>– tree and shrub identification</li> <li>– non-woody plant identification</li> </ul> </li> <li>• prepare a display of details that help to identify local trees, shrubs and non-woody plants; e.g.:               <ul style="list-style-type: none"> <li>– leaves</li> <li>– flowers/cones</li> <li>– twigs</li> <li>– bark.</li> </ul> </li> </ul>	<p>Field trips will provide opportunities for “on-site” tree location/ identification.</p> <p>Use appropriate identification keys to assist in identifying tree species.</p> <p>Gather and prepare leaf and twig collections.</p>



**COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS)**

<b>Level:</b>	Introductory
<b>Theme:</b>	Social and Cultural Perspectives
<b>Prerequisite:</b>	Emergency First Aid (current certification)
<b>Description:</b>	Students demonstrate the basic skills required for responsible participation in a range of outdoor activities.

**Parameters:** Access to an outdoor wilderness environment (e.g., one of Alberta’s six natural regions) and gear for outdoor expeditions.

Instructor training (current certification) in Standard Level First Aid is required; instructor training in First Aid in the Wilderness is recommended.

Teachers may find it desirable to access the services of a qualified Outdoor Guide in delivering components of this course.

Off-campus learning activities must be commensurate with previous levels of wilderness training and experience; day trips should precede extended overnight trips; experience in hardcover camping should precede potential softcover camping and/or emergency shelter camping opportunities.

**Note:** Specific outcomes in Outdoor Experiences 1 and 2 link with the *National Occupational Standards for Outdoor Guide* (Alberta Tourism Education Council), and address core skills in Environmental Awareness, Camp and/or Trip Operation, Safety and Survival.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) of this Guide for further information on instructor training/certification and linkages.

**Supporting Course:** CTR1210 Personal Safety (Management)

Because of the practical nature of this course, students must have a general knowledge of basic first-aid and survival techniques relevant to wilderness environments. See Planning for Instruction in Section C for further information on student safety.

**Note:** WLD1030 and WLD2030 (Outdoor Experiences 1 and 2) provide opportunities for wilderness interaction at a personal level. This course sequence should place emphasis on developing skills that will enable students to safely observe and appreciate wildlife and habitat within one or more of Alberta’s six natural regions.



**COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS) (continued)**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>maintaining a log/journal of outdoor experiences that provides summative reflection on:               <ul style="list-style-type: none"> <li>individual and group preparedness, cooperation and responsibility</li> <li>observations of wildlife and habitat</li> <li>environmental ethics.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Reflection Guide for Outdoor Experiences, FORREF-OUT</i></p> <p><i>Standard</i>  <i>Complete five log/journal entries; address criteria for reflection to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tools</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Wilderness Experience</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>identify, assess, avoid and/or respond to physical hazards that may be imposed by the natural environment; e.g.:               <ul style="list-style-type: none"> <li>particular terrain and conditions, including avalanche, rock slides, lake and river ice, and bush travel</li> <li>wildlife that may be encountered, including bears, bees, ticks, nonedible plants, snakes</li> <li>changes in weather conditions that may affect personal and group safety</li> </ul> </li> <li>identify, assess, avoid and/or respond to physiological and psychological factors often associated with outdoor experiences; e.g.,               <ul style="list-style-type: none"> <li>dealing with hypothermia, frostbite, dehydration and heat stroke</li> <li>understanding fatigue and when not to move</li> <li>coping with adversities, such as getting lost or hurt</li> </ul> </li> </ul>	<p><b>Student safety must be a prime consideration in selecting learning activities within this course. Activities must be consistent with student knowledge and skill levels.</b></p> <p>Investigate hazards pertinent to a particular activity. View films and slide shows of outdoor activities that involve physical hazards.</p> <p>Invite guest speakers to present information and advice on expeditions.</p>

**COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS) (continued)**

Concept	Specific Outcomes	Notes
<p>Wilderness Experience (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• list and explain necessary steps to take in emergency and survival situations in the outdoors; e.g.:               <ul style="list-style-type: none"> <li>– what to do if lost or separated from the group</li> <li>– first aid and emergency response to injury</li> <li>– construction of emergency shelters</li> <li>– how to gather food from edible plants</li> <li>– en route organizational strategies, including lead and sweep, regrouping procedures, pacing</li> </ul> </li> <li>• select appropriate personal and group gear for outdoor activities; e.g.:               <ul style="list-style-type: none"> <li>– personal gear, with consideration to maintaining body temperature and protection from injury</li> <li>– group gear, to meet requirements for food, shelter, travel and emergencies</li> </ul> </li> <li>• demonstrate safe use and appropriate care of outdoor hand tools, including knives, axes and saws</li> <li>• demonstrate safe procedures for building and using outdoor fires; e.g.:               <ul style="list-style-type: none"> <li>– signalling</li> <li>– warming</li> <li>– cooking</li> </ul> </li> <li>• explain techniques used to plan, pack, carry and prepare foods during outdoor expeditions; e.g.:               <ul style="list-style-type: none"> <li>– nutritional requirements</li> <li>– portability and preservation factors</li> <li>– food preparation techniques</li> <li>– safe use of campfires</li> </ul> </li> <li>• explain techniques that can be used to maintain hygiene during outdoor expeditions; e.g.:               <ul style="list-style-type: none"> <li>– water purification systems</li> <li>– food storage</li> <li>– personal health</li> </ul> </li> </ul>	<p>Engage students in simulation activities, role playing and case studies.</p> <p>Review basic first aid and immerse students in emergency response situations.</p> <p>Have students present a “fashion show” or produce a video that demonstrates appropriate equipment and its use.</p> <p>Conduct maintenance clinic.</p> <p>Demonstrate techniques — then plan and carry out a schoolyard “cookout.”</p> <p>Involve students in menu planning for a hypothetical or proposed field trip.</p> <p>Invite guest speakers from a health department or from national/provincial parks.</p>

**COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS) (continued)**

Concept	Specific Outcomes	Notes
Wilderness Experience (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• explain techniques for minimum impact/no-trace land use; e.g.:               <ul style="list-style-type: none"> <li>– guidelines for camping, controlling garbage, using water supply, using open fires and disposing of human waste</li> <li>– protection of flora and fauna.</li> </ul> </li> </ul>	<p>Discuss principles of “ecotourism.” Consider carrying capacity of a local area in relation to minimum environmental impact.</p> <p>Cite examples of careers in tourism (e.g., outdoor guide, fishing guide) that promote minimum impact land use.</p>
Outdoor Travel	<ul style="list-style-type: none"> <li>• plan and conduct safe outdoor expeditions in the natural environment; e.g.:               <ul style="list-style-type: none"> <li>– research information from a variety of sources, including maps, aerial photographs, guidebooks, journals and local experts</li> <li>– interpret route information by selecting reasonable destinations, estimating travel time and anticipating obstacles</li> <li>– apply knowledge and skills while en route, including map reading and compass skills, knowledge of terrain and route selection, and mapping of key landmarks and directions</li> </ul> </li> <li>• use appropriate modes of travel to safely participate in outdoor activities; e.g.:               <ul style="list-style-type: none"> <li>– hiking/backpacking</li> <li>– cross-country skiing</li> <li>– snowshoeing</li> <li>– canoeing</li> </ul> </li> <li>• demonstrate safe and unobtrusive techniques to examine wildlife and habitat; e.g.:               <ul style="list-style-type: none"> <li>– plant/animal identification</li> <li>– wildlife hazards</li> <li>– animal tracks and scat</li> <li>– animal behaviour/social patterns</li> </ul> </li> </ul>	<p>Examine maps, research books and reference materials on particular field sites to be visited.</p> <p>Assess alternative routes with regard to time and preparation required for each.</p> <p>Conduct map reading and basic orienteering exercises in school yard.</p> <p>Plan and implement a sequence of skill development activities with a follow-up excursion.</p> <p>Develop appropriate observation techniques; practise observing students in a library, animals in the zoo, etc.</p> <p>Reference the activities and suggestions provided in <i>The Art of Seeing and Tracking</i>.</p> <p>Make plaster casts of animal tracks.</p> <p>Examine furs, skulls, bones, nests, etc.</p>

**COURSE WLD1030: OUTDOOR EXPERIENCES 1 (SURVIVAL SKILLS) (continued)**

Concept	Specific Outcomes	Notes
Outdoor Travel (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• demonstrate minimum impact/no-trace land use while participating in outdoor expeditions; e.g.:               <ul style="list-style-type: none"> <li>– proper trail use, including the avoidance of trail widening</li> <li>– campsite care, including the use of fires and stoves, tent site selection and firewood selection</li> <li>– waste disposal techniques, including latrines, waste water disposal and garbage.</li> </ul> </li> </ul>	<p>Observe human impacts on a wilderness area.</p> <p>Set up a model campsite in the school yard or a local park; practise minimum impact/no-trace land use.</p>

**MODULE FOR1050: MAPPING & AERIAL PHOTOS**

**Level:** Introductory

**Theme:** Technology and Applications

**Prerequisite:** None

**Module Description:** Students interpret information from different types of maps and aerial photographs used in the forestry industry.

**Module Parameters:** Access to forest maps and aerial photographs.

**Curriculum and Assessment Standards**

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>• describe different types of maps and aerial photographs used in forestry</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>• preparing and presenting a portfolio that includes:               <ul style="list-style-type: none"> <li>– four or more different types of maps used in forestry, and explanations of the characteristics and applications of each</li> <li>– a one-page report on the National Topographic Grid System and its application in providing legal land descriptions</li> <li>– the results of research conducted on the goals and techniques of aerial photography.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Portfolio Assessment: Maps Used in Forestry, FOR1050–1</i></p> <p><i>Standard</i>  <i>Complete all portfolio components to a standard of 1 on the rating scale</i></p>	<p>20</p>
<ul style="list-style-type: none"> <li>• interpret and apply information from maps and aerial photographs</li> </ul>	<ul style="list-style-type: none"> <li>• performing practical orienteering tasks that involve the use of information conveyed through maps. Tasks to include:               <ul style="list-style-type: none"> <li>– orienting a map through inspection of surroundings and use of a compass</li> <li>– obtaining bearings from a map using a compass</li> <li>– measuring direction using a Douglas protractor</li> <li>– given a legal land description, locating the parcel of land on a map.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Task Checklist: Orienteering, FOR1050–2</i>  <i>Lab Assessment: Outdoor Forest Experiences, FORLAB</i></p> <p><i>Standard</i>  <i>Achieve a performance rating of 1 in task assessment <u>and</u> lab assessment</i></p>	<p>50</p>

**MODULE FOR1050: MAPPING & AERIAL PHOTOS** (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>• demonstrate procedures used to create maps</li> <li>• identify careers in the forest industry relevant to mapping and aerial photography</li> <li>• demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>• describing topography and forest cover for a given area based on information gathered from:               <ul style="list-style-type: none"> <li>– an aerial photograph and corresponding parts of a forest type map</li> <li>– two or more different types of aerial photographs (e.g., black and white, colour, infrared, satellite imagery).</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Knowledge/Application Assessment: Reading and Interpreting Forest Maps, FOR1050–3</i></p> <p><i>Standard</i>  <i>Respond to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>• constructing a simple map that represents a local forested area. Map to display scale, legend, major land and forest features and topography.</li> </ul> <p><i>Assessment Tool</i>  <i>Task Checklist for Mapping, FORMAP</i></p> <p><i>Standard</i>  <i>Complete applicable mapping tasks to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>• given current information on career opportunities in mapping and aerial photography, completing a research project on one or more related occupations.</li> </ul> <p><i>Assessment Tool</i>  <i>Career Search: Introductory Level, FORCAR–1</i></p> <p><i>Standard</i>  <i>Conduct research to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>• observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tool</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p></p> <p>20</p> <p>10</p> <p>Integrated throughout</p>

**MODULE FOR1050: MAPPING & AERIAL PHOTOS** (continued)

Concept	Specific Learner Expectations	Notes
<p>Applications of Maps and Aerial Photographs</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• describe different types of maps used in forestry; e.g.:               <ul style="list-style-type: none"> <li>– base maps</li> <li>– topographic/contour maps</li> <li>– soil type maps</li> <li>– forest stand or type maps</li> </ul> </li>   <li>• describe components and applications of the National Topographic Grid System and the Western Grid Survey System</li>   <li>• explain the purpose and techniques of aerial photography</li>   <li>• describe applications of different types of film used in aerial photography; e.g.:               <ul style="list-style-type: none"> <li>– black and white</li> <li>– black and white infrared</li> <li>– colour</li> <li>– colour infrared</li> </ul> </li>   <li>• describe information-gathering technologies and their applications in mapping; e.g.:               <ul style="list-style-type: none"> <li>– satellite imagery</li> <li>– global positioning systems (GPS)</li> <li>– geographic information systems (GIS).</li> </ul> </li> </ul>	<p>Contact the Canadian Forestry Service (Natural Resources Canada) or local forest industry to request different types of maps used in forestry.</p> <p>Obtain maps and photos of locally known areas from Alberta Environmental Protection.</p> <p>See related topics and resources in the Agriculture strand (AGR3120: Soils Management 2).</p> <p>Contact industry and/or government resource persons.</p> <p>See “JFW Green Tree Trailblazer Leader Manual,” <i>Woodstravel</i>, pp. 117–216).</p> <p>Contact RADARSAT International (3851 Shell Road, Suite 200, Richmond, British Columbia) for current information regarding applications of satellite remote sensing in mapping Canada’s forest resources.</p>

**MODULE FOR1050: MAPPING & AERIAL PHOTOS** (continued)

Concept	Specific Learner Expectations	Notes
<p>Interpreting Maps and Aerial Photographs</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• orient forestry maps through:               <ul style="list-style-type: none"> <li>– inspection</li> <li>– use of a compass</li> </ul> </li> <li>• identify bearings from a map using a forestry compass</li> <li>• calculate direction using a Douglas protractor</li> <li>• read and interpret maps and aerial photographs, explaining information conveyed through:               <ul style="list-style-type: none"> <li>– legend and symbols</li> <li>– scale</li> <li>– colours</li> <li>– contour lines</li> </ul> </li> <li>• locate a specific parcel of land on a map by using its legal survey description</li> <li>• describe land terrain from information conveyed through maps</li> <li>• estimate and calculate distance and area on maps</li> <li>• demonstrate applications of aerial photographs in the stereoscopic viewing of topographic features</li> <li>• compare details of forest type maps and aerial photographs with existing ground conditions.</li> </ul>	<p>Read and interpret maps/photos of locally known areas.</p> <p>See map interpretation activities provided in:</p> <ul style="list-style-type: none"> <li>• <i>Orienteering, Level I</i></li> <li>• <i>Orienteering, Level II.</i></li> </ul> <p>Develop a series of mapping activities—start with locating dots in the classroom, then markers around the school, and finally markers around a park or wooded area.</p> <p>See related topics and resources in the Agriculture strand (AGR3120: Soils Management 2).</p> <p>Consider links with the mathematics program:</p> <ul style="list-style-type: none"> <li>• scale diagrams</li> <li>• ratio and proportion</li> <li>• estimation.</li> </ul> <p>Discuss the theory behind stereoscopic vision and techniques used to train the eye.</p>
<p>Making Maps</p>	<ul style="list-style-type: none"> <li>• construct a map that provides information about a forested area; e.g.:           <ul style="list-style-type: none"> <li>– pace/measure area to be mapped</li> <li>– gather information regarding land/forest features</li> <li>– determine map scale</li> <li>– prepare a legend</li> <li>– plot major land/forest features</li> </ul> </li> </ul>	<p>Create a simple topographical map of a local area.</p>

**MODULE FOR1050: MAPPING & AERIAL PHOTOS** (continued)

Concept	Specific Learner Expectations	Notes
<p>Making Maps (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• explain how information from aerial photographs is used to construct two-dimensional maps</li> <li>• compare details of an aerial photograph with corresponding parts of a forest type map.</li> </ul>	<p>Use aerial photographs to create a simple map.</p> <p>If time permits, create a photo mosaic by arranging consecutive aerial photographs along a flight path.</p>
<p>Career Opportunities</p>	<ul style="list-style-type: none"> <li>• research potential careers and the range of occupational opportunities in mapping and aerial photography:               <ul style="list-style-type: none"> <li>– professional</li> <li>– technical</li> <li>– labour-based</li> </ul> </li> <li>• describe employment statistics within one or more areas of specialization; e.g.:               <ul style="list-style-type: none"> <li>– types of careers</li> <li>– number of workers</li> <li>– employment trends</li> </ul> </li> <li>• infer career opportunities and trends from employment statistics</li> <li>• infer impacts of technology development on employment opportunities</li> <li>• predict future information-gathering techniques likely to be used in the forest industry, and resulting career opportunities.</li> </ul>	<p>Interview people employed in careers that involve mapping and aerial photography. Identify some general areas of specialization.</p> <p>Review National Occupational Profiles (NOC).</p> <p>Contact the “Career Hotline” (telephone 1-800-661-3753).</p> <p>Contact senior management people in the forest industry; also users of information-gathering technologies (e.g., GPS, GIS).</p>



**COURSE FOR1060: MEASURING THE FOREST 1 (MEASUREMENT SKILLS)****Level:** Introductory**Theme:** Technology and Applications**Prerequisites:** FOR1050 Mapping & Aerial Photos  
Emergency First Aid (current certification)**Description:** Students demonstrate basic forest measurement skills, and apply these skills to sample fibre values in a forested region.**Parameters:** Access to a demonstration forest and forest measurement tools.

Instructor training (current certification) in Standard Level First Aid is required.

See Section C (Planning for Instruction) and Section H (Linkages/Transitions) for further information on instructor training and certification.

**Supporting Course:** CTR1210 Personal Safety (Management) [Career Transitions Strand]

Because of the practical nature of this course, students must have a general knowledge of basic first-aid and survival techniques relevant to forest environments. See Planning for Instruction in Section C for further information on student safety.

**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>explain the goals and techniques of conducting forest surveys</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>completing a research project on the goals and techniques of conducting a forest survey. Research to address: <ul style="list-style-type: none"> <li>reasons for conducting forest surveys</li> <li>techniques used to sample a forested area</li> <li>how sample data is used to estimate forest populations.</li> </ul> </li> </ul> <p><i>Assessment Tool</i> <i>Research Process: Forest Surveys, FOR1060-1</i></p> <p><i>Standard</i> <i>Conduct research to a standard of 1 on the rating scale</i></p>	10



**COURSE FOR1060: MEASURING THE FOREST 1 (MEASUREMENT SKILLS) (continued)**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tool</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above.</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Forest Surveys</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>identify reasons for conducting a forest survey; e.g.:               <ul style="list-style-type: none"> <li>types of information gathered</li> <li>questions that are answered</li> </ul> </li> <li>distinguish between forest samples and forest populations</li> <li>describe basic techniques used to sample a forested area; e.g.:               <ul style="list-style-type: none"> <li>layout of sample plots</li> <li>data collection techniques</li> </ul> </li> <li>explain how sample data may be used to estimate fibre volumes and other nonfibre forest resources.</li> </ul>	<p>Invite resource persons from government, industry and/or professional associations.</p> <p>See <i>Alberta's Focus on Forests</i> (Activity 4.3– Surveying the Forest Resource).</p>
<p>Compass and Measurement Skills</p>	<ul style="list-style-type: none"> <li>demonstrate basic compass skills to establish direction in the forest; e.g.:               <ul style="list-style-type: none"> <li>orient a map</li> <li>establish and follow a bearing</li> </ul> </li> <li>calculate horizontal distance in the forest using pacing and chaining skills</li> <li>demonstrate open and closed traverses in the forest using compass and chaining skills</li> <li>calculate the diameter of trees using a diameter tape or other suitable equipment</li> </ul>	<p>Develop basic skills in measuring direction and distance in the forest.</p> <p>Invite resource persons from local government/ industry to demonstrate:</p> <ul style="list-style-type: none"> <li>compass and chain skills</li> <li>techniques in measuring the forest.</li> </ul>

**COURSE FOR1060: MEASURING THE FOREST 1 (MEASUREMENT SKILLS) (continued)**

Concept	Specific Outcomes	Notes
Compass and Measurement Skills (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• calculate the height of trees using a clinometre and measuring tape or other suitable equipment</li> <li>• demonstrate techniques used to determine the age of trees.</li> </ul>	<p>Borrow necessary equipment from local government/industry organizations.</p> <p>Use short pieces of logs.</p>
Sampling Technique	<ul style="list-style-type: none"> <li>• demonstrate compass and chaining skills to establish boundaries for a sample forest plot</li> <li>• identify safety practices and policies relevant to gathering sample data in the forest</li> <li>• describe data regarding one or more aspects of the fibre resource within the sample forest plot; e.g.:               <ul style="list-style-type: none"> <li>– tree height/diameter</li> <li>– number and distribution of species</li> <li>– age of trees</li> </ul> </li> <li>• record sample data in appropriate tables and/or charts</li> <li>• interpret sample data to make inferences regarding tree populations and fibre values in the forest region</li> <li>• manipulate sample data as required to estimate fibre volumes.</li> </ul>	<p>Contact local government/industry to obtain existing sample data.</p>

**COURSE FOR1090: FOREST ECOLOGY 1 (ECOSYSTEM DYNAMICS)****Level:** Introductory**Content Focus:** Management and Conservation**Prerequisite:** None**Description:** Students investigate forest ecosystems, and explain the structure and functioning of trees.**Parameters:** Access to a science laboratory and/or forest environment.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>describe interrelationships among elements in the forest ecosystem</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>given access to information on forest ecology, completing a research project that examines:               <ul style="list-style-type: none"> <li>interrelationships among at least three living and three nonliving elements</li> <li>predator–prey–decomposer relationships</li> <li>distribution of species on the basis of habitat requirements.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Research Process: Forest Ecosystems, FOR1090–1</i></p> <p><i>Standard</i>  <i>Complete all components of research to a standard of 1 on the rating scale</i></p>	50
<ul style="list-style-type: none"> <li>describe structural units of the tree and their function in performing life processes</li> </ul>	<ul style="list-style-type: none"> <li>identifying and describing major tree parts (including roots, trunk, branches, leaves, flowers), their function and relationship to one another.</li> </ul> <p><i>Assessment Tool</i>  <i>Knowledge/Application Assessment: Structural Units of the Tree, FOR1090–2</i>  <i>Assessment Criteria: Diagrams and Technical Drawings, FORDRA</i></p> <p><i>Standard</i>  <i>Respond to a standard of 1 on the rating scale</i></p>	50

**COURSE FOR1090: FOREST ECOLOGY 1 (ECOSYSTEM DYNAMICS)**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>conducting directed laboratory and/or field investigations that demonstrate three or more vital life processes performed by trees; e.g., nutrient uptake, photosynthesis, respiration, transpiration, reproduction.</li> </ul> <p><i>Assessment Tool</i>  <i>Lab Investigations: Tree Biology, FOR1090–3</i></p> <p><i>Standard</i>  <i>Complete lab and/or field investigations to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tool</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Outcomes	Notes
<p>Forest Ecosystems</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>define and provide examples of: <ul style="list-style-type: none"> <li>ecology/ecosystems</li> <li>abiotic/biotic factors</li> <li>abiotic/biotic interactions</li> <li>populations</li> <li>communities</li> <li>succession</li> </ul> </li> <li>identify living and nonliving elements within a local forest ecosystem; e.g.: <ul style="list-style-type: none"> <li>soil characteristics</li> <li>land form</li> <li>climate</li> <li>flora and fauna</li> <li>soil organisms</li> </ul> </li> </ul>	<p><b>This course involves the application of ecosystem concepts within a forest environment.</b></p> <p>Use field trips to provide opportunities for the first-hand observation of components of a forest ecosystem.</p> <p>Observe forest layers; e.g., canopy, understory.</p> <p>Observe succession at the edge of clearings and fields, spruce under a pine forest, erosion along a river bank, old burn, etc.</p>

**COURSE FOR1090: FOREST ECOLOGY 1 (ECOSYSTEM DYNAMICS)**

Concept	Specific Outcomes	Notes
Forest Ecosystems (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• describe the interrelatedness of elements within a local forest environment; e.g.:               <ul style="list-style-type: none"> <li>– relationship of soil, air and water characteristics to plant growth</li> <li>– interactions and dependencies among living organisms</li> </ul> </li> <li>• explain the role of trees within a local forest ecosystem; e.g.:               <ul style="list-style-type: none"> <li>– exchange of gases</li> <li>– water cycle</li> <li>– nutrient cycling</li> <li>– wildlife habitat</li> <li>– soil conservation</li> </ul> </li> <li>• describe food relationships among living organisms within a local forest environment; e.g.:               <ul style="list-style-type: none"> <li>– role of producers, consumers and decomposers</li> <li>– food chains and webs</li> </ul> </li> <li>• compare the ecological niches of selected plant and animal species native to Alberta.</li> </ul>	<p>Conduct experiments to demonstrate the interrelatedness of air, water, soil and plant growth.</p> <p>Observe evidence of plant growth being affected by particular environmental conditions; e.g., light, soil, moisture, crowding.</p> <p>Draw food webs/energy chains based on observations; e.g.:</p> <ul style="list-style-type: none"> <li>• fungal damage</li> <li>• insect damage</li> <li>• wildlife browsing.</li> </ul> <p>Observe evidence of insect or other animal life living on a tree or shrub. Collect and observe samples of insects by placing a sheet of plastic under the plant and tapping branches with a stick.</p>
Tree Biology	<ul style="list-style-type: none"> <li>• explain the vital life processes performed by trees and other forest plants; e.g.:               <ul style="list-style-type: none"> <li>– nutrient intake and transportation</li> <li>– photosynthesis</li> <li>– respiration and transpiration</li> <li>– reproduction</li> <li>– phrenology (leaf flushings, leaf fall, flowering and cone production)</li> </ul> </li> </ul>	<p>Conduct laboratory experiments and demonstrations to examine life functions.</p> <p>Draw and label a cross-section of a tree (top to bottom) that illustrates structural units and component parts.</p>

**COURSE FOR1090: FOREST ECOLOGY 1 (ECOSYSTEM DYNAMICS)**

Concept	Specific Outcomes	Notes
<p>Tree Biology (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• describe structural units and component parts of the tree, and their function in performing vital life processes; e.g.:               <ul style="list-style-type: none"> <li>– root</li> <li>– trunk/stem</li> <li>– leaf</li> <li>– flower</li> </ul> </li> <li>• infer interrelationships among tree structures, their functions, and vital life processes that are performed</li> <li>• show the approximate range of one or more tree species throughout North America.</li> </ul>	<p>Use a microscope to observe and draw stomata and cells.</p> <p>Prepare a model by using a small tree; label all parts of the tree.</p> <p>Make tree discs; identify cross-sectional parts; e.g., cambium, sapwood, heartwood.</p> <p>Consider relationships among root, trunk, branch, leaf and flower.</p> <p>Discuss information conveyed through annual tree rings; examine the grain in dimensional lumber.</p>

**COURSE FOR1100: FORESTS FOREVER 1 (FOREST USE & PROTECTION)****Level:** Introductory**Theme:** Management and Conservation**Prerequisite:** None**Description:** Students describe past and present uses of Canada’s forests, and explain how research and technology assist in forest management.**Parameters:** Access to government and industry organizations responsible for the sustainable management of forests; e.g., Alberta Environmental Protection, Canadian Forestry Service.**Curriculum and Assessment Standards**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>describe past and present uses of forests in Alberta and Canada</li> <li>explain how the consumptive and nonconsumptive use of forests has created a need for conservation and sustainable management of forested regions</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>identifying and explaining:               <ul style="list-style-type: none"> <li>past and present uses of forests in Alberta and Canada</li> <li>ways in which changes in forest use (and management) have affected the economy and the environment.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Knowledge/Application Assessment: Forest Use, FOR1100–1</i></p> <p><i>Standard</i>  <i>Respond to a standard of 1 on the rating scale</i></p>	20
	<ul style="list-style-type: none"> <li>definitions and examples of sustainable yield and sustainable development within the context of Alberta’s forested regions.</li> </ul> <p><i>Assessment Tool</i>  <i>Knowledge/Application Assessment: Sustainability, FOR1100–2</i></p> <p><i>Standard</i>  <i>Respond to a standard of 1 on the rating scale</i></p>	30

**COURSE FOR1100: FORESTS FOREVER 1 (FOREST USE & PROTECTION) (continued)**

General Outcomes	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>• describe the role of research and technology in forest protection</li> <li>• demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> <li>• given a current issue regarding the management of a forested region:               <ul style="list-style-type: none"> <li>– negotiating and debating the issue while assuming the role of one or more stakeholder groups</li> <li>– preparing and presenting a position paper that outlines a responsible course of action.</li> </ul> </li> </ul> <p><i>Assessment Tool</i>  <i>Negotiation and Debate: Introductory Level, FORNEG-1</i>  <i>Position Paper: Forest Management, FOR1100-3</i></p> <p><i>Standard</i>  <i>Address criteria in negotiation/debate and the position paper to a standard of 1 on the rating scale</i></p> <ul style="list-style-type: none"> <li>• completing a research project on major components of forest protection.               <p><i>Assessment Tool</i>  <i>Research Process: Components of Forest Protection, FOR1100-4</i></p> <p><i>Standard</i>  <i>Complete all components of research to a standard of 1 on the rating scale</i></p> </li> <li>• given access to a forest environment, identifying instances of pest and/or fire damage. Identification will involve:               <ul style="list-style-type: none"> <li>– collecting and/or photographing pest problems</li> <li>– correctly identifying four or more forest pests</li> <li>– recommending appropriate prevention/control strategies for each pest identified.</li> </ul> <p><i>Assessment Tool</i>  <i>Task Checklist: Identifying Forest Pests, FOR1100-5</i>  <i>Identification Key for Forest Pests, FOR1100-6</i>  <i>Lab Assessment: Outdoor Forest Experiences, FORLAB</i></p> <p><i>Standard</i>  <i>Achieve a performance rating of 1 in task assessment <u>and</u> lab assessment</i></p> </li> <li>• observations of individual effort and interpersonal interaction during the learning process.               <p><i>Assessment Tools</i>  <i>Basic Competencies Reference Guide and any assessment tools noted above.</i></p> </li> </ul>	<p></p> <p>50</p> <p>Integrated throughout</p>

**COURSE FOR1100: FORESTS FOREVER 1 (FOREST USE & PROTECTION) (continued)**

Concept	Specific Outcomes	Notes
Forest History	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• describe changing patterns of forest use in Canada and Alberta from past to present</li> <li>• describe the history of the management of forested lands in Canada and Alberta</li> <li>• infer the impact of historical trends in forest use and ownership on people, the economy and the environment</li> <li>• make predictions about the use of Canada's forest resources in the future.</li> </ul>	<p>Trace the development of Alberta's forest land acts, policies and agencies.</p> <p>Supplementary reference materials include:</p> <ul style="list-style-type: none"> <li>• <i>A Forest Journey – The Role of Wood in the Development of Civilization</i> (Harvard University Press)</li> <li>• <i>Canadian Forestry – The View Beyond the Trees</i> (Macmillan of Canada).</li> </ul>
Conservation and Management	<ul style="list-style-type: none"> <li>• compare different uses of forested regions in terms of their advantages and disadvantages; e.g.: <ul style="list-style-type: none"> <li>– environmental</li> <li>– economic</li> <li>– social</li> </ul> </li> <li>• describe the roles of different interest groups in managing the forest resource; e.g.: <ul style="list-style-type: none"> <li>– government</li> <li>– forest industry</li> <li>– general public</li> <li>– other stakeholder groups</li> </ul> </li> <li>• relate concepts of sustainable development and sustained yield to practical strategies for managing the forest resource; e.g.: <ul style="list-style-type: none"> <li>– reforestation</li> <li>– stand improvement</li> </ul> </li> <li>• describe an issue regarding sustainable development and/or sustained yield; e.g.: <ul style="list-style-type: none"> <li>– conduct research</li> <li>– develop a position</li> <li>– participate in debate</li> </ul> </li> <li>• explain demands that are placed on forested regions of Canada and Alberta; e.g.: <ul style="list-style-type: none"> <li>– industry</li> <li>– recreation</li> <li>– wildlife</li> <li>– environment</li> </ul> </li> </ul>	<p>Invite resource persons from relevant government agencies and local forest industry.</p> <p>Prepare a poster/collage/display that depicts different aspects of forest use.</p> <p>Visit local forest sites.</p> <p>Develop strategies for debate and consensus building; e.g., selective versus clearcut logging practices.</p> <p>Invite resource people from the community to critique debates.</p>

**COURSE FOR1100: FORESTS FOREVER 1 (FOREST USE & PROTECTION) (continued)**

Concept	Specific Outcomes	Notes
<p>Conservation and Management (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• identify a plan for the integrated use of a local forested area; e.g.:               <ul style="list-style-type: none"> <li>– conduct research</li> <li>– generate alternatives</li> <li>– agree to a workable solution.</li> </ul> </li> </ul>	<p>Examine existing management plans.</p>
<p>Forest Protection</p>	<ul style="list-style-type: none"> <li>• explain reasons for protecting the forest resource; e.g.:               <ul style="list-style-type: none"> <li>– material and non-material benefits</li> <li>– environmental impact</li> </ul> </li> <li>• identify and describe major components of forest protection; e.g.:               <ul style="list-style-type: none"> <li>– forest fire management</li> <li>– soil conservation and land reclamation</li> <li>– pest and disease management</li> </ul> </li> <li>• explain basic goals and techniques of forest fire management, soil conservation and land reclamation</li> <li>• identify and describe symptoms of common forest pests and diseases</li> <li>• compare different methods of pest and disease control; e.g.:               <ul style="list-style-type: none"> <li>– biological methods</li> <li>– forest management</li> <li>– chemical methods.</li> </ul> </li> </ul>	<p>Prepare a display of technologies used in forest protection.</p> <p>Invite a local forest ranger to explain components/ techniques of forest protection.</p> <p>Compare and contrast the consequences of forest fires and logging practices.</p> <p>Explain the fire triangle and methods used to control fire by removing one or more legs of the triangle.</p> <p>Visit a cutblock and examine for successful regeneration.</p> <p>Visit a plantation/tree nursery and examine seedlings.</p>