

INFERENCE

Definition: to derive a conclusion from facts or premises

Synonyms: infer, deduce, deduct, draw, gather, judge

Criteria for Assessing Inferences

Inferences made in intermediate level courses should communicate the process used to derive conclusions. Inferences are valid if they are communicated in a logical sequence with sufficient supporting detail. Both the type and amount of information used to derive a conclusion are important in determining the validity of the inference.

Each inference made regarding the impact of daily living activities on forest ecosystems should provide:

- a clear statement of the situation
- relevant facts and detail that support more than one point of view
e.g., cultural, ethical, economic, environmental, health-related
- a logical sequence of ideas that lead to a conclusion
- evidence that different points of view were considered in deriving the conclusion
- a conclusion that is valid and realistic in light of the information gathered.

RATING SCALE

4	3	2	1	0
Exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.	Meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.	Meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.	Meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.	Has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

Log of Reflections and Inferences

The log will include five or more journal entries that describe daily living activities having impact on forest ecosystems. Activities may be seasonal in nature (e.g., burning wood for heat), yet need to be of sufficient duration to permit reflection on their consequences. Each journal entry should describe:

- the nature of the activity
- a rationale for participating in the activity
- inferences regarding both short- and long-term consequences for forest ecosystems.

Journal entries may reference activities that:

- involve the consumption of fibre-based products; e.g.:
 - wood as a fuel
 - paper and paper products
 - food products/additives
- involve recreational use of the forest; e.g.:
 - personal use of forest environments
 - use of recreational vehicles
 - participation in hunting and/or fishing activities
- influence the forest in indirect ways; e.g.:
 - use of heat in the home
 - turning on an electric light
 - use of an automobile.

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

G.74/ Forestry, CTS
(1997)

TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- identifies different types of refuse that can be recycled in practical and economical ways
- identifies four or more products recently developed through recycling techniques; e.g.:
 - plastic wood
 - paper
 - synthetic fibres
 - clothing

Content (continued)

- identifies advantages and disadvantages associated with each of four recycled products, and trade-offs that occur through the recycling process; e.g.:
 - social
 - economic
 - environmental
- _____
- explains in detail technologies and processes used to develop one or more recycled products, and prepares flowcharts/diagrams that illustrate major stages/steps in the recycling process
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites five or more relevant information sources

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Evaluating Choices/Making Decisions	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

TASK CHECKLIST

The student:

Preparation and Planning

- accurately describes an issue related to reducing, reusing and/or recycling on which people disagree, explaining areas of disagreement
- poses one or more thoughtful questions regarding the issue
- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques

Analyzing Perspectives

- identifies and categorizes trade-offs that occur through reducing, reusing and/or recycling
e.g., cultural, ethical, economic, environmental, health-related
- states a position on the issue and reasons for adopting that position
- states two or more opposing positions on the issue and reasons for adopting each position
- describes interrelationships among different perspectives/points of view
- determines accuracy/currency/reliability of information and ideas

Collaboration and Teamwork

- shares work appropriately among group members
- respects and considers the views of others
- negotiates solutions to problems

Evaluating Choices/Making Decisions

- identifies important and appropriate alternatives regarding reducing, reusing and/or recycling
- establishes knowledge- and value-based criteria for assessing each alternative:
e.g., social, economic, environmental
- _____

- selects an appropriate alternative by showing differences among choices
- assesses strengths/weaknesses of decisions made regarding the issue by considering consequences
- _____

- communicates ideas in a logical sequence with sufficient supporting detail to justify choices/decisions made

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Presenting/ Reporting	4	3	2	1	0	N/A

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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and describes steps to achieve them
- uses personal initiative to formulate questions and find answers
- accesses a range of relevant in-school/ community resources
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- plans and uses time effectively
- gathers and responds to feedback regarding approach to task and project status

Content

- provides a timeline of major changes that have occurred in the ownership and administration of forested lands in Alberta; e.g.:
 - Federal jurisdiction
 - Provincial status
 - *Natural Resources Transfer Act*
- describes different land tenures in Alberta today; e.g.:
 - public (provincial and federal crown lands)
 - private
- prepares a map that outlines different land management areas in Alberta; e.g.:
 - white area
 - green area

Content (continued)

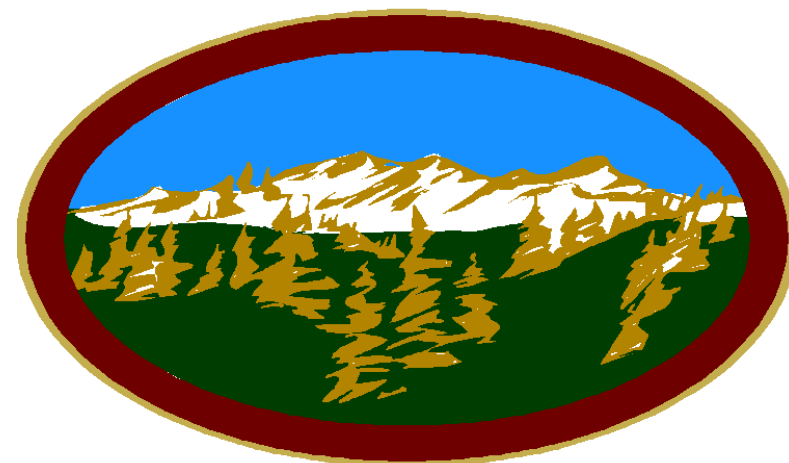
- explains the mandates of five or more agencies responsible for managing forested lands within Alberta's boundaries; e.g.:
 - Alberta Environmental Protection
 - Parks Canada
 - private ownership
 - Metis or Native Indian
 - Forestry Canada
- prepares a graph (e.g., circle) that depicts current land ownership distribution in Alberta

Presenting/Reporting

- demonstrates effective use of at least two communication media:
 - e.g., Written: *spelling, punctuation, grammar, format (formal/ informal)*
 - Oral: *voice projection, body language, appearance*
 - Audio-Visual: *techniques, tools, clarity*
- maintains acceptable grammatical and technical standards through proofreading and editing
- provides an introduction that describes the purpose and scope of the project
- communicates ideas into a logical sequence with sufficient supporting detail
- states a conclusion by synthesizing the information gathered
- provides a reference list that includes five or more relevant information sources

REFLECTIONS/COMMENTS:

DATE	EVENT
1670-1870	Forests are administered by the Hudson Bay Co.
1870	Government of Canada administers forest lands
1885	Disposition of timber is administered by public competition. Criteria similar to present LTPs
1905	Alberta becomes a province September 1, 1905, but does not have control of resources
1910	<i>Forest Reserves and Parks Act</i> replaces <i>Forest Reserves Act</i> of 1906 Five forests are created
1930	Control of natural resources is transferred to Alberta
1948	Crowsnest, Bow and Clearwater forests are placed under AEUB (formerly ERCB) jurisdiction Green and Yellow areas are established in Alberta
1949	The Department of Lands and Forests is created The first <i>Forests Act</i> is passed
1966	The timber quota system is established.
19--	-----
19--	-----
19--	-----



Reference: *Public Hearings on the Environmental Effects of Forestry Operations in Alberta, Perspectives II - The Forest Industry in Alberta*

FORESTS ACT

This Act provides overall direction for forest legislation (primarily the allocation of timber harvesting rights) in Alberta. It consists of four parts:

1. Administration - defines forest officers, specifies who can make regulations, prescribes uses and prohibited activities.
2. Crown Timber - specifies the four methods of allocating cutting rights to crown timber. Conditions associated with each tenure are outlined.
3. Forest Land Uses - outlines the means to authorize, prescribe and control recreational activities on forested land.
4. Offences and Penalties - outlines offences under the *Forests Act* and prescribes penalties.

Timber Management Regulation

This regulation is more specific than the *Forests Act*. It specifies the conditions associated with Timber Quotas, Commercial Timber Permits (CTPs), Local Timber Permits (LTPs), Forest Products tags, Christmas tree permits, rates of crown dues, timber appraisal, payments of crown charges, clearing land for industrial uses and general provisions. The amounts of specific penalties are also indicated.

Typical content provided in a Forest Management Agreement (FMA) would be:

- | | |
|--------------------------------|-----------------------------------|
| • description of area | • records and scaling |
| • land withdrawals | • charges and dues |
| • rights over the land | • mill construction and operation |
| • forest management provisions | • deposit |
| – general | • general provisions. |
| – reforestation | |
| – forest protection | |

Forest Land Use and Management Regulations

These regulations control vehicle access into Willmore Wilderness Park and prescribe penalties for the contravention of regulations.

Forest Recreation Regulation

This regulation establishes Forest Land Use Zones, Forest Recreation Areas and Forest Recreation trails. Activities permitted in a Forest Recreation Area are indicated, along with prescribed user fees.

THE FOREST AND PRAIRIE PROTECTION ACT

This Act authorizes legislation that covers all aspects of protecting the forest from fire.

The Forest and Prairie Protection Regulations

Part I

- issuing of fire permits
- fire prevention precautions (industrial, pipe line, campfires, incinerators, power saws)
- travel in a closed area
- conscription exemptions
- required fire fighting equipment
- liability

Part II

- fire hazard reduction procedures for debris disposal associated with:
 - logging
 - agriculture
 - geophysical exploration
- conduct of firefighting operations
- pollution and erosion control.

FOREST RESERVES ACT

This Act provides a means of establishing forest reserves in Alberta. These reserves are generally south of the 12th Base line and include most of the Foothills South Region. Procedures are indicated for:

- | | |
|----------------------|---|
| • acquiring land | • posting signs |
| • making regulations | • identifying offences and issuing penalties. |
| • cancelling permits | |

Forest Reserves Regulations

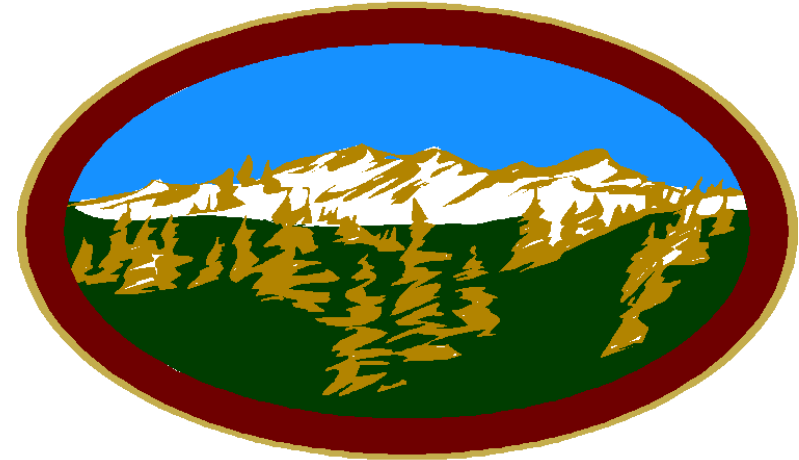
These regulations specify the conditions associated with domestic grazing within Forest Reserves, and include:

- types of permits
- requirements of a range management plan
- conditions associated with grazing.

PROVINCIAL PARKS ACT

This Act gives authority to the Government of Alberta to establish criteria for creating provincial parks. It deals with:

- purpose of parks and recreation areas
- authority to acquire land for parks
- authority to create parks and recreation areas
- authority to make regulations for disposition of land for parks
- authority of the Minister regarding closures, concessions, standards of operations and zoning
- control and protection of roads
- authority of parks officers
- seizures
- offences.

**WILLMORE WILDERNESS PARK ACT**

This Act establishes the Willmore Wilderness area. It identifies intended uses (mines and minerals are not subject to this Act) and gives Cabinet the authority to make regulations.

WILDERNESS AREAS ACT

This Act identifies procedures for establishing a wilderness area. It deals with:

- land acquisition
- programs permitted in a wilderness area
- prohibited activities
- travel restrictions
- provision of adjacent buffer areas
- offences and penalties.

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

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N/A Not Applicable

TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- explains the use of dispositions/authorizations in the form of permits, licences and other legal agreements in managing commercial activities on forested lands
- identifies different public land users/uses, and criteria for establishing forest land and timber dispositions; e.g.:
 - fibre production
 - recreation/agriculture
 - wildlife habitat

Content (continued)

- describes the intent of three or more different timber dispositions issued by the Alberta Forest Service, and the responsibilities of holders of these dispositions
- describes the intent of three or more other types of dispositions used to manage nonfibre aspects of forest use; e.g.:
 - grazing
 - hunting, fishing and trapping
 - energy and mineral development
- explains the role of consultation (with other resource users) and public involvement in establishing land and timber dispositions
- _____
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites five or more relevant information sources

REFLECTIONS/COMMENTS:

TRIP PLANNING AND PREPARATION

The student:

- establishes specific objectives for an outdoor wilderness trip; e.g.:
 - goals and expectations
 - length of trip
 - destination
 - general itinerary and daily agendas
- prepares a camping menu for self that addresses:
 - expected caloric output
 - all food groups included in the *Canada's Food Guide for Healthy Eating*
 - concerns related to food spoilage
 - provisions for emergency
- plans for weather and seasonal conditions; e.g.:
 - identifies hazards particular to the area
 - listens to weather and news reports/forecasts
- incorporates guidelines for environmental awareness into trip planning; e.g.:
 - principles of ecotourism
 - consideration for carrying capacity
 - strategies for minimum impact land use
- identifies and obtains appropriate supplies, equipment and personal gear for the trip; e.g.:
 - water and food
 - tent, stove, axe
 - first aid and survival supplies
 - clothing and foot wear
 - toiletries

TRIP PLANNING AND PREPARATION (continued)

The student:

- conducts pre-trip assessment of supplies, equipment and personal gear; e.g.:
 - compares to trip checklist
 - assesses quality, quantity and condition
 - assesses weather and seasonal conditions
 - obtains missing and/or specialty items
- prepares supplies, equipment and personal gear for transportation; e.g.:
 - addresses weight restrictions
 - makes efficient use of space
 - packs food to prevent spoilage and minimize odour
- plans course of action to cope with potential emergency situations in the wilderness; e.g.:
 - extreme weather conditions
 - fire or flood
 - injury and illness
 - avalanche
- reviews legislation and policy requirements relevant to area being visited; e.g.:
 - information regarding dangers inherent in the area
 - permits/licences that may be required
-
-

CONDUCTING THE TRIP

The student:

- follows guidelines for safe travel in an outdoor environment; e.g.:
 - follows travel schedule as planned
 - uses orientation and navigational skills
 - identifies potential hazards and takes necessary precautions
 - dresses according to mode of travel, weather and season
 - watches for changes in current weather conditions
- sets up campsite following guidelines for comfort, safety and least possible environmental impact; e.g.:
 - selects appropriate campsite
 - erects tent or lean-to
 - assembles other amenities
 - protects food from wildlife and spoilage
 - protects equipment from the elements
- follows minimal impact guidelines in establishing and using campsite; e.g.:
 - latrine location and toilet procedures
 - wash area and procedures
 - fire site and use
 - garbage and waste water disposal
- complies with local, provincial and federal legislation relevant to activities that are undertaken
- assumes camp duties on a rotational basis; e.g.:
 - meal preparation
 - camp maintenance and hygiene

CONDUCTING THE TRIP (continued)	
<i>The student:</i>	
<input type="checkbox"/>	monitors the activities of wildlife in the area and takes precautions to avoid dangerous situations
<input type="checkbox"/>	
<input type="checkbox"/>	

WILDERNESS INTERACTION	
<i>The student:</i>	
<input type="checkbox"/>	identifies 25 insect, bird, mammal and/or other animal species
<input type="checkbox"/>	identifies 25 tree, shrub and/or other plant species
<input type="checkbox"/>	identifies, while demonstrating appropriate safety/health precautions , five different: <ul style="list-style-type: none"> <input type="checkbox"/> animal tracks and scat <input type="checkbox"/> hazardous plants
<input type="checkbox"/>	identifies five or more uses of plants and/or animals for human survival and comfort in the wilderness environment
<input type="checkbox"/>	spends three hours alone in a designated wilderness area, and shares experiences and coping strategies

WILDERNESS INTERACTION (continued)	
<i>The student:</i>	
<input type="checkbox"/>	
<input type="checkbox"/>	

BREAKING CAMP AND CONCLUDING THE TRIP	
<i>The student:</i>	
<input type="checkbox"/>	follows appropriate procedures for breaking camp: <ul style="list-style-type: none"> <input type="checkbox"/> packs supplies, equipment and personal gear <input type="checkbox"/> takes down shelter <input type="checkbox"/> cleans site and removes waste <input type="checkbox"/> does circle tour of site
<input type="checkbox"/>	conducts a post-trip assessment: <ul style="list-style-type: none"> <input type="checkbox"/> observations and personal impressions <input type="checkbox"/> activities well done <input type="checkbox"/> problems encountered <input type="checkbox"/> recommendations regarding future trips
<input type="checkbox"/>	
<input type="checkbox"/>	

STANDARD IS 2 IN EACH APPLICABLE TASK AREA

Rating Scale

- The student:*
- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
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 - 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.
- N/A Not applicable

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING					
Individual/Group Preparedness	4	3	2	1	0	N/A
Cooperation and Teamwork	4	3	2	1	0	N/A
Responsibility and Safety	4	3	2	1	0	N/A
Environmental Ethics	4	3	2	1	0	N/A

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N/A Not applicable

TASK CHECKLIST

The student:

Individual/Group Preparedness

- sets goals and follows instructions accurately
- adheres to established timelines
- identifies/assembles outdoor gear appropriate to the task
- uses time effectively
- identifies tasks well done
- identifies problems encountered and suggests solutions
- makes recommendations regarding future trips
- _____
- _____

Cooperation and Teamwork

- works with a range of peer members
- shares work appropriately among group members
- considers the ideas/suggestions of others
- identifies tasks well done
- identifies problems encountered and suggests solutions
- makes recommendations regarding future trips
- _____
- _____

Responsibility and Safety

- selects and uses appropriate equipment/materials
- follows safe procedures/techniques
- anticipates and advises of potential hazards
- practises proper sanitation procedures
- identifies tasks well done
- identifies problems encountered and suggests solutions
- makes recommendations regarding future trips
- _____
- _____

Environmental Ethics

- uses environmentally friendly materials
- picks up garbage and carries out everything that is carried in
- avoids ecologically sensitive areas
- demonstrates techniques for protecting water supply
- identifies tasks well done
- identifies problems encountered and suggests solutions
- makes recommendations regarding future trips
- _____
- _____

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
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G.84/ Forestry, CTS
(1997)

TASK CHECKLIST

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Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- distinguishes between random and systematic sampling techniques
- defines/illustrates and explains the steps involved in conducting:
 - random plot samples
 - random transect samples
 - systematic plot samples
 - systematic transect samples

Content (continued)

- identifies sampling designs suited to gathering specific data regarding:
 - distribution of a tree species
 - growth, age and/or volume of trees
 - soil, water and/or wildlife characteristics
 - potential for recreation and/or agriculture
- explains sources of bias and error in random and systematic sampling designs, and problems related to use of the sample data in estimating forest values or populations

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
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REFLECTIONS/COMMENTS:

ALLOCATING TIME AND MATERIALS

The student:

- develops and follows a schedule of activities for sampling forest values
- selects and safely uses appropriate equipment and materials
- uses appropriate safety devices; e.g.:
 - protective clothing
 - protective eye wear
 - hard hats
- recognizes potential hazards and takes steps to eliminate/avoid them.

SAMPLING DESIGN

The student:

- identifies goals/outcomes for a forest survey
- determines the type and amount of data to be collected
- selects a sampling technique suited to survey goals/outcomes and type/amount of data to be collected; e.g.:
 - random
 - systematic
 - transect
 - plot
- establishes boundaries for the sample area
- designs a data collection sheet appropriate to the information to be collected
- takes necessary precautions to address health and safety concerns throughout the planning process (e.g., huanta virus in owl pellets)

COLLECTING, RECORDING AND COMPILING SAMPLE DATA

The student:

- collects sample data regarding a specific fibre and nonfibre value on 0.01% of the forested area
- records data accurately and systematically, using standard data collection techniques
- adheres to health and safety practices while collecting and recording data
- performs calculations on sample data as required in order to estimate fibre and nonfibre resources
- prepares a summary of fibre data accurate to within 10% of existing volume estimates
- states conclusions regarding fibre and nonfibre values based on observations and compilations of sample data.
-
-

SUMMARIZING AND ASSESSING SURVEY RESULTS

The student:

- summarizes the strengths and weaknesses of the sample data
- considers limitations and generalizability of conclusions drawn regarding fibre and nonfibre values in the forested area
- critically examines procedures/outcomes/ task performance and suggests refinements.

SUMMARIZING AND ASSESSING SURVEY RESULTS (continued)

The student:

-
-

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N/A Not Applicable

REFLECTIONS/COMMENTS

ACTIVITY #5

SAMPLE WILDLIFE INVENTORY FORM

Signs of Browsing # _____ Evidence (# species) _____

Signs of scat # _____ Distance of nearest water _____ m

Distance to nearest permanent housing _____ km

Availability of forage: low medium high

Type: _____

Availability of browse species: low medium high

Type: _____

Other signs of wildlife (e.g., nests, burrows): _____

ACTIVITY #6

SAMPLE INSECT AND DISEASE INVENTORY FORM

Evidence of insects: low medium high

Evidence of disease: low medium high

Specimen 1:

Attack location	roots	yes	no
	trunk	yes	no
	foliage	yes	no

Specimen 2:

Attack location	roots	yes	no
	trunk	yes	no
	foliage	yes	no

Specimen 3:

Attack location	roots	yes	no
	trunk	yes	no
	foliage	yes	no



Assessment Criteria and Conditions:

- identifying major components of a plan for forest harvest, including:
 - when and how much to cut
 - methods of harvest (e.g., clearcutting, shelter wood method) and logging (e.g., hand, mechanical)
 - regeneration and environmental protection.

Suggested Reference(s):

- *Alberta’s Focus on Forests*
- *Our Growing Resource*
- *Managing the Forest*

STANDARD: Respond to a standard of 2 on the rating scale.

Rating Scale

The student:

- 4 meets project/task objectives in a self-directed manner. Provides explanations and critical judgements based on a superior knowledge base. Demonstrates an understanding of relevant concepts and related issues.
- 3 meets project/task objectives in a self-directed manner. Provides explanations and comparisons of relevant concepts using more precise terminology. Requires little or no prompting.
- 2 meets project/task objectives with limited assistance in planning and in selecting and using resources. Applies knowledge of concepts in different situations using correct terminology. Requires occasional prompting.
- 1 completes task as directed, demonstrating basic skills/completeness by following a guided course of action. Uses simple recall to demonstrate basic knowledge of concepts. Requires prompting.
- 0 does not complete the task, or is unable to provide a suitable response.

N/A Not Applicable

G.88/ Forestry, CTS
(1997)

Background Information

See *Alberta’s Focus on Forests*:

- Activity 4.6: Cutting Styles
- Activity 5.3: Forest Perspectives.

See *Managing the Forest*:

Harvest

- Logging Plans
- Forest roads
- Harvesting Methods
- Hazard Abatement - Slash Burning.

Sample Questions/Activities

1. **Define and give examples of allowable cut, sustained yield and integrated use within the context of forest harvest planning.**
2. **Explain applications of forest inventory data in establishing a plan for harvest; e.g.:**
 - identification of tree species
 - determining timber quality, volume and age
 - layout of cutting area and landing sites
 - planning for forest access
3. **Explain and illustrate the clear cutting, seed tree, shelter wood and selection methods of forest harvest.**
4. **Give examples of natural and artificial regeneration, and the advantages/disadvantages of each.**
5. **Identify environmental concerns to be addressed through harvest planning; e.g.:**
 - protection of sensitive areas
 - impact on downstream values
 - landslide and erosion hazards.

PLANNING COMPONENTS	YES	NO	N/A
Have block layout requirements been met?	<input type="checkbox"/>	<input type="checkbox"/>	
Has block size met operating ground rule guidelines?	<input type="checkbox"/>	<input type="checkbox"/>	
Have operability factors been considered?	<input type="checkbox"/>	<input type="checkbox"/>	
Has the condition of the timber been accounted for?	<input type="checkbox"/>	<input type="checkbox"/>	
Have deciduous and coniferous operations been integrated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have utilization standards been considered?	<input type="checkbox"/>	<input type="checkbox"/>	
Is the method of harvest appropriate to the terrain?	<input type="checkbox"/>	<input type="checkbox"/>	
Do block boundaries follow natural breaks in topography, stand types, watershed divides, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	
Is harvest sequence logical in volume to be removed at any cut, timing of the second cut, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	
Have management objectives of other agencies been considered?			
• fisheries and wildlife	<input type="checkbox"/>	<input type="checkbox"/>	
• recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• watershed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the reforestation plan included?	<input type="checkbox"/>	<input type="checkbox"/>	
Is a plan for forest protection included?	<input type="checkbox"/>	<input type="checkbox"/>	
Have forest landscape management principles been applied?	<input type="checkbox"/>	<input type="checkbox"/>	

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

REFLECTIONS/COMMENTS

CLEARCUTTING

1. Give a definition of clearcutting.
 - *A method of reproducing even aged stands where all of the standing mature trees are cut at one time during a rotation.*
2. Give four examples of situations or conditions where clearcutting is the only feasible reproduction method to use.
 - *even aged, mature to over mature stands*
 - *shade intolerant species*
 - *on sites subject to windthrow*
 - *stand replacement, e.g.:*
 - *good phenotypes to replace poor phenotypes*
 - *change species composition*
 - *change to a regulated forest.*
3. Identify three advantages of using artificial regeneration with clearcutting.
 - *equipment and techniques in logging and site preparation are unrestricted*
 - *close control of composition and arrangement of new stand*
 - *superior genetic strains and species can be introduced*
 - *prompt regeneration.*
4. What are two disadvantages of using artificial regeneration with clearcutting?
 - *slash disposal is required*
 - *existing vegetation must be controlled before planting*
 - *may be a tendency toward a monoculture.*
5. Identify three conditions where it is advantageous to use artificial regeneration with clearcutting.
 - *where seed supply is not dependable*
 - *where it is desirable to change species composition*
 - *dense, mature forests where dominants are not windfirm*
 - *where silvicultural practice is intensive.*
6. What two conditions are essential if natural regeneration is to be used successfully with clearcutting?
 - *distribution of abundant seed supply over entire area*
 - *favourable environmental conditions for seed germination and development.*
7. What are two problems with relying on natural regeneration after clearcutting in a white spruce stand?
 - *delay in regeneration until there is a good seed crop and weather suitable for germination and survival*
 - *the delay in regeneration may result in development of ground vegetation which leads to an irregular aged stand.*
8. Identify the three modifications of the clearcutting method.
 - *patch*
 - *alternate strip*
 - *progressive strip.*
9. What is the minimum number of cutting operations in the progressive strip method?
 - *three.*
10. What are three biological advantages of the clearcutting method?
 - *appropriate for shade intolerant species*
 - *can change species composition*
 - *thorough site preparation is possible*
 - *options for regeneration include seed from standing timber, slash-borne cones and artificial regeneration*
 - *the only method to obtain successful regeneration from some species.*
11. List three considerations that come into play when planning size, form and arrangement of cuts for a clearcutting operation.
 - *ecological characteristics of the species*
 - *topography*
 - *road network*
 - *logging equipment.*
12. What are three advantages of progressive strip clearcutting over other forms of clearcutting?
 - *area to be artificially regenerated is smaller than with other methods*
 - *strip widths can be made narrow enough so natural regeneration takes place*
 - *reduction in potential losses from windthrow (the last strip is the most susceptible)*
 - *aesthetics are improved over other methods since volume harvested at any time is low.*
13. Identify two economic advantages of the clearcutting method.
 - *harvesting costs are low*
 - *simple and efficient administration, logging and silvicultural operations.*
14. What are three biological disadvantages of the clearcutting method?
 - *maximum degree of site exposure*
 - *slash hazard*
 - *require site preparation*
 - *all parts of a stand pass simultaneously through each stage of development.*

CLEARCUTTING (continued)

15. What are two economic disadvantages of the clearcutting method?
- *cost of regeneration may be high*
 - *may not be a market for small sized wood*
 - *must wait one full rotation until the next harvest.*
16. What are three detrimental effects on fish populations when clearcutting right to the edge of stream banks?
- *water temperatures rise adversely affecting the food supply of fish*
 - *situation of streams*
 - *debris can clog streams.*
17. Give three specific situations where clearcutting is the most appropriate method of cutting.
- *where there are even aged over mature forests*
 - *where there are shade intolerant species*
 - *where sites are subject to windthrow*
 - *where poor phenotypes are to be replaced by good phenotypes or where species composition is to be changed.*
18. Clearcutting results in maximum site exposure. Identify three environmental factors associated with this exposure and indicate how each of these affects the chances for regeneration of tree seedlings.
- *high radiation loads during day – heat injury*
 - *large diurnal temperature fluctuations – danger of freezing injury*
 - *high moisture stress – seedling desiccation*
 - *erosion of soil – seedlings washed out or buried*
 - *more wind – high evaporative stress.*
19. Give three reasons why harvesting costs are lower in clearcutting than with any other reproduction method.
- *operations are concentrated*
 - *minimal road development*
 - *few restrictions on equipment*
 - *no tree marking.*

SEED TREE METHOD

20. Define what is meant by the seed tree reproduction method.
- *A method to propagate even aged stands where essentially all mature trees are removed at one time with the retention of scattered trees (singly or in small groups) to serve as a seed source.*
21. In what two ways does the seed tree method differ from clearcutting?
- *retention of scattered seed trees*
 - *seed supply from the scattered seed trees – more uniform seed distribution.*

22. Identify two situation or conditions where the seed tree method is appropriate.
- *even aged stands*
 - *shade intolerant, windfirm trees with light, wind blown seed*
 - *where there are few restrictions on size and arrangement of cut areas.*
23. Identify four desirable characteristics for seed trees.
- *must be windfirm*
 - *must produce abundant and fertile seed*
 - *must be a dominant (D) or a good codominant (CD)*
 - *good phenotype*
 - *desired species.*
24. What are two silvical advantages of the seed tree method over the clearcutting method?
- *source of seed on very ha*
 - *good control of species composition and phenotypic characteristics.*
25. What are three economic advantages of the seed tree method over the clearcutting method?
- *larger areas can be cut at one time*
 - *simple to apply since the only marking required is the seed trees*
 - *seed trees may be cut or left.*
26. Identify two disadvantages (economic or biological) of the seed tree method compared to the clearcutting method.
- *seed source is exposed and there is risk of loss*
 - *some restrictions in logging.*
27. Why is the seed tree method not very commonly used now?
- *The method was not properly applied (e.g., too few seed trees per ha left, trees lacked windfirmness, poor quality trees were left).*
28. Is the seed tree method desirable for the White Spruce and Lodgepole Pine species in Alberta? For each species answer yes or no and indicate why.
- | | |
|---|--|
| White Spruce | Lodgepole Pine |
| <ul style="list-style-type: none"> - <i>no, lacks windfirmness</i> | <ul style="list-style-type: none"> - <i>no, not ideal for serotinous coned populations, may be suitable for populations with nonserotinous cones.</i> |

SHELTERWOOD METHOD

29. Give a definition of the shelterwood reproduction method. Be sure to indicate how the method differs from other reproduction methods.
- *This is a method to propagate even aged stands where two or more partial cuts are made in a mature stand over a relatively short period (<20%) of the rotation.*
30. The preparatory cutting is the first cut in a three-cut shelterwood. What are the two purposes for undertaking this cut?
- *open up the stand to enhance seed production*
 - *allow more radiation to reach the forest floor and decompose thick organic horizons.*
31. What crown classes are removed in a preparatory cutting?
- *intermediate (I), overtopped or suppressed (O), poorly formed codominant (CD).*
32. What is the purpose of the seed cutting?
- *To further open up the stand and allow for establishment of regeneration.*
33. When should the seed cutting in the shelterwood method occur?
- *During a good seed year.*
34. What are two purposes for the removal cuttings in the shelterwood method?
- *uncover the new crop*
 - *to remove overstorey which has increased in value.*
35. What is the prime factor that will determine when a removal cut (final cut) should be made?)
- *Condition of the regeneration, when regeneration is well established the final cut can be made.*
36. Identify four biological advantages of the shelterwood method.
- *best seed supply of even aged systems*
 - *natural regeneration is more certain and complete*
 - *best method for producing even aged stands of shade tolerant species*
 - *light and heavy seeded species can be regenerated*
 - *suitable for stands consisting of two or more species with different lengths of rotation*
 - *reduced fire hazard*
 - *less susceptible to insects and diseases.*
37. What are two biological disadvantages of the shelterwood method?
- *risk of windfall*
 - *damage to regeneration during harvest*
 - *damage to overstorey during harvest.*
38. The shelterwood method has a number of economic advantages. Identify two of them.
- *less waste than clearcutting*
 - *overlap of rotations*
 - *for sawlog material or high value product.*
39. What is one economic disadvantage of the shelterwood method?
- *harvesting is costly*
 - *high cost of harvesting may be essential to obtain cheap natural regeneration.*
40. What is the purpose of the seed cutting in the shelterwood method? What three crown classes are removed in this cut?
- *Open up stand so regeneration can become established*
 - *intermediate (I), overtopped or suppressed (O), many codominant (CD).*
41. Give three reasons why harvesting is more expensive with the shelterwood method than with clearcutting.
- *more restrictions on logging equipment*
 - *tree marking is required*
 - *more skilled personnel required*
 - *more scattered operations*
 - *same area logged more than once.*
42. Give two economic features (other than harvesting) which apply to the shelterwood method.
- *overlap or rotations*
 - *cheap natural regeneration may be obtained.*
43. Identify five biological features of the shelterwood method.
- *best seed supply of even aged systems*
 - *natural regeneration more certain and complete*
 - *best method for producing even aged stands of shade tolerant species*
 - *can regenerate light and heavy seeded species*
 - *suitable for stands consisting of two or more species with different lengths of rotation*
 - *lowered susceptibility to insects and disease*
 - *fire hazard may be reduced*
 - *risk of windfall*
 - *damage to regeneration during harvest*
 - *damage to overstorey during harvest.*

SELECTION METHOD

44. Give a definition of the selection reproduction method.
- *Mature timber in an uneven aged stand is removed as single, scattered trees or in small groups, at short intervals (cutting cycles) repeated indefinitely.*
45. identify three situations where the selection method would be appropriate to use.
- *all aged or uneven aged stands*
 - *high value stands of sawtimber*
 - *areas of high danger for windfall and snow breakage*
 - *protection forests*
 - *parks where aesthetics are important.*
46. What is meant by the cutting cycle in the selection method?
- *The number of years between successive cuts in the same stand.*
47. The selection method can be used in stands which have a J-shaped dbh class distribution. What is meant by a J-Shaped curve?
- *This is a diameter distribution curve in a stand that has a large number of small diameter trees and a small number of large diameter trees.*
48. What is the minimum number of age classes in a stand suitable for the selection method?
- *three.*
49. Why is it important to maintain a balance between the following components?
- A) growth
 - B) harvested yield
 - C) reproduction.
- *If any component is reduced too severely, eventually the stand will have insufficient regeneration and sustained yield cannot be attained.*
50. Identify three characteristics that you might use in selecting trees to be harvested.
- *trees larger than a specified dbh*
 - *age or size of trees*
 - *quality of trees*
 - *vigour of trees.*
51. Identify two economic advantages of the selection method.
- *production and financial returns are continuous*
 - *financially attractive for farm woodlots*
 - *merchantable yield may be higher than with even aged methods.*
52. Identify five advantages of the selection reproduction method. Consider only the silvics of the tree species or stands.
- *maximum site protection*
 - *continuous seed source*
 - *sell protected seedlings*
 - *reduced windfall hazard*
 - *minimized snow damage*
 - *minimized insect and disease damage*
 - *only method to maintain uneven aged stands*
 - *applicable to shade tolerant species*
 - *thin and harvest cut simultaneously*
 - *minimized fire hazard.*
53. What are two other advantages (exclude economics and silvics) of the selection method?
- *enhanced aesthetics*
 - *improved wildlife habitat*
 - *fish habitat optimized.*
54. Give three reasons why harvesting costs with the selection method are higher than for any other reproduction method.
- *operations are scattered*
 - *restrictions on choice of logging methods and equipment*
 - *each area must be logged a number of times*
 - *skilled personnel are needed for marking, felling and extraction.*
55. Indicate two other economic disadvantages of the selection method.
- *restricted to situations where there is a market for large size, high value trees*
 - *danger of high grading*
 - *complicated administration.*
 - *danger of high grading*
 - *complicated administration.*
56. What is one advantage for stream fish when the selection method of harvesting is used?
- *streams are shaded to water temperature does not rise*
 - *no debris in stream to clog channel*
 - *bank damage is minimized so siltation is reduced.*
57. Identify two advantages for deer when the selection method of timber harvest is used.
- *edge effect is maximized*
 - *feeding areas (open) in proximity to hiding and thermal cover.*

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- outlines major categories/types of forest products, and examples of consumer products within each category; e.g.:
 - pulp and paper
 - lumber
 - veneer and plywood
 - board products
 - chemical and medicinal products

Content (continued)

- explains the steps and processes involved in converting a log into:
 - lumber
 - pulp
 - one other forest product
- provides a summary of new developments in milling and pulping technology
- provides a list of safety regulations pertinent to a sawmill and/or a pulp mill
- _____
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites five or more relevant information sources

REFLECTIONS/COMMENTS:

Assessment Criteria and Conditions:

- developing a rationale for forest management in Alberta that involves:
 - identifying economic, environmental and social needs addressed through forest management
 - definitions and examples of sustainable development, sustained yield and allowable cut

Suggested Reference(s):

- *Our Growing Resource*
- *Alberta’s Focus on Forests*
- *Managing the Forest*

STANDARD: Respond to a standard of 2 on the rating scale.

Rating Scale

The student:

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- 0 does not complete the task, or is unable to provide a suitable response.

N/A Not Applicable

Background Information

See *Our Growing Resource*, Chapter 2 – The Challenge of Sustainable Development:

- Managing Forest Development
- Integrated Resource Management – Accommodating Many Uses
- Harvest Planning and Practices
- Reforestation
- Air and Water Quality
- Building Sustainable Businesses.

See *Alberta’s Focus on Forests*, Unit 5 – Forest Management for All:

- 5.1: Forest Values
- 5.2: Decision for Change
- 5.3: Forest Perspectives
- 5.4: Reforestation: Forests or Tree Farms?
- 5.5: Integrated Resource Management
- 5.6: What’s in the Wastebasket – Reassessing Our Needs

Sample Questions/Activities

1. **Explain the goals of “sustainable development,” “sustainable yield” and “allowable cut” within the context of Alberta’s forests.**
2. **Discuss the meaning of the following definition of sustainable forest management:**
“the development of forests to meet current needs without prejudice to their future productivity, ecological diversity, or capacity for regeneration.”
3. **Identify and explain major components/ considerations in sustainable forest management; e.g.:**
 - timber resources
 - biodiversity of wildlife
 - air, land and water quality.
4. **Identify two or more economic, environmental and social needs addressed through the management of forested lands in Alberta.**
5. **Interview representatives of three or more different forest industry organizations regarding their approach to sustainable forest management; e.g.:**
 - priorities
 - actions.
6. **Identify current research projects underway that are intended to support sustainable forestry practices.**

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Analyzing Perspectives	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Evaluating Choices/Making Decisions	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

TASK CHECKLIST

The student:

Preparation and Planning

- accurately describes ten or more current uses/values of Alberta’s forests
- poses thoughtful questions regarding each forest use/value
- accesses a range of relevant information sources and recognizes when additional information is required
- demonstrates resourcefulness in collecting data

Analyzing Perspectives

- categorizes the views of different interest groups regarding three or more types of forest use; *e.g., cultural, ethical, economic, environmental, health-related, scientific, political*
- states a position on one issue regarding forest use, and insightful reasons for adopting that position
- states two or more opposing positions on the issue and thoughtful reasons for adopting each position
- analyzes interrelationships among different perspectives/points of view
- recognizes underlying bias/assumptions/values in information and ideas

Collaboration and Teamwork

- shares work appropriately among group members
- respects and considers the views of others
- negotiates with sensitivity solutions to problems regarding forest use

Evaluating Choices/Making Decisions

- describes in detail important and appropriate alternatives regarding one type of forest use
- establishes knowledge- and value-based criteria for assessing each alternative: *e.g., social, economic, environmental*
- selects an appropriate and useful alternative by showing differences among choices
- assesses strengths/weaknesses of decisions by considering consequences and implications for:
 - forest users
 - forest ecosystems
- develops strategies for compromise and/or conflict resolution among different forest users/interest groups
- communicates thoughts/feelings/ideas clearly to justify choices/decisions made

REFLECTIONS/COMMENTS:

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

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N/A Not Applicable

Assessment Tools

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TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- defines and gives examples of conservation and preservation within the context of forest management
- cites instances where differences in philosophy have affected forest management and protection
- explains the mandates of five or more agencies responsible for managing Alberta's forested lands; e.g.:
 - Alberta Forest Service
 - Fish and Wildlife Services

Content (continued)

- explains the intent of four or more different agreements, permits and/or licences that make Alberta's forests available for commercial or private use; e.g.:
 - forest management agreements
 - quota certificates
 - commercial/private timber permits
- identifies factors likely to influence future forest management practices; e.g.:
 - knowledge/technology
 - recreation and tourism
- _____
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites five or more relevant information sources

REFLECTIONS/COMMENTS:

Assessment Criteria and Conditions:

- identifying four or more major categories of forest use (e.g., industry, recreation, tourism, environmental) and examples of forest users within each category

Suggested Reference(s):

- *Alberta’s Focus on Forests*
- *Woodlot Management Guide for the Prairie Provinces*

STANDARD: Respond to a standard of 2 on the rating scale.

Rating Scale

The student:

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- N/A Not Applicable

Background Information

See *Alberta’s Focus on Forests*, Unit 5 - Forest Management for All:

- 5.1: Forest Values
- 5.2: Decision for Change
- 5.3: Forest Perspectives
- 5.4: Reforestation: Forests or Tree Farms?
- 5.5: Integrated Resource Management
- 5.6: What’s in the Wastebasket - Reassessing Our Needs

See *Woodlot Management Guide for the Prairie Provinces*:

- Section G: Wildlife and Woodlots
- Section H: Recreation
- Section J: Agroforestry

Sample Questions/Activities

- 1. Identify major categories of forest use and different forest users within each category;** e.g.:
 - industrial
 - recreational
 - tourism
 - agriculture
 - environmental
- 2. Describe a range of specific forest uses and multiple demands placed upon forested lands;** e.g.:
 - wood fibre production
 - wildlife management
 - grazing and range management
 - watershed
 - oil, gas and mining
 - recreation
 - protected areas
- 3. Explain why forests can and should serve many purposes.**
- 4. Cite examples of the multiple use of Alberta’s forests;** e.g.:
 - using different parts of the forest for different purposes
 - using the same area of the forest to obtain more than one benefit.
- 5. Interview representatives of three or more different forest industry organizations regarding their approach to multiple use of forested lands;** e.g.:
 - priorities
 - actions.

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering and Processing	4	3	2	1	0	N/A
Content	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A

STANDARD IS 2 IN EACH APPLICABLE TASK

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence.
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively.
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately.
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately.
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

N/A Not Applicable

Assessment Tools

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TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant in-school/community resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- records information accurately with appropriate supporting detail and using correct technical terms
- determines accuracy/currency/reliability of information sources
- gathers and responds to feedback regarding approach to the task

Content

- explains why forests can and should simultaneously serve social, economic and environmental goals
- provides a definition of multiple land use, and cites examples of the multiple use of Alberta's forests; e.g.:
 - using different parts of the forest for different purposes
 - using the same area of the forest at different times to obtain more than one benefit

Content (continued)

- provides a definition of integrated land use, and cites examples in Alberta where a common area of forested land serves two or more purposes at the same time; e.g.:
 - wood fibre production and wildlife management
 - grazing, oil production and recreation
- compares and contrasts principles of multiple land use with principles of integrated land use
- explains the goals of Integrated Resource Planning (IRP)
- _____
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites five or more relevant information sources

REFLECTIONS/COMMENTS: