

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Technical Components	4	3	2	1	0	N/A
Information Sharing	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A

STANDARD IS 1 FOR 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

TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and follows instructions
- responds to directed questions and/or follows necessary steps to find answers
- uses time effectively
- accesses basic in-school/community information sources
- interprets and organizes information logically
- transfers and/or extrapolates data from print and visual sources to create time chart
- _____
- _____

Technical Components

- prepares a chart that outlines the eras and periods of geological time
- provides an appropriate chart title
- illustrates and records life characteristic of each era/period in time
- provides a topographical description of what Alberta was like for each era/period of time
- organizes use of space; e.g.:
 - geological chart in relation to paper size
 - use of borders
 - presentation of symbols/descriptors in relation to available space

Technical Components (continued)

- demonstrates appropriate use of colour, shading and/or patterns
- produces a document free of wrinkles and smudges
- maintains appropriate technical standards through proofreading and editing; e.g.:
 - spelling
 - legibility
- _____
- _____

Information Sharing

- communicates chart content through oral presentation
- demonstrates ability to use chart overlays in presentation
- poses questions based on information provided in chart
- _____
- _____

Collaboration and Teamwork

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

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING					
Management	4	3	2	1	0	N/A
Teamwork	4	3	2	1	0	N/A
Equipment and Materials	4	3	2	1	0	N/A
Investigative Techniques	4	3	2	1	0	N/A

STANDARD IS 1 IN EACH APPLICABLE TASK

Rating Scale

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N/A Not applicable

TASK CHECKLIST

The student:

Management

- prepares self for task
- organizes and works in an orderly manner
- carries out instructions accurately
- uses time effectively

Teamwork

- cooperates with group members
- shares work appropriately among group members

Equipment and Materials

- selects and uses appropriate equipment/materials
- follows safe procedures/techniques
- measures accurately
- returns clean equipment/materials to storage areas

Investigative Techniques

- gathers and applies information to determine physical characteristics of rock and mineral samples
- plans and conducts tests to determine physical similarities and differences among three or more hydrocarbon-bearing samples common in Alberta (e.g., dolomite, limestone, sandstone, shale)

Investigative Techniques (continued)

- prepares a chart describing similarities and differences among three or more hydrocarbon-bearing samples
- plans and conducts tests to determine physical similarities and differences among six or more of Alberta's metallic and/or industrial minerals (e.g., coal, copper, iron, limestone, magnesium, sulphur, clay, salt/potash, aggregates)
- prepares a chart describing similarities and differences among six or more metallic and/or industrial minerals with respect to:
 - colour
 - lustre
 - crystal structure
 - streak
- summarizes investigative results in explaining:
 - potential capacity of rock samples to bear hydrocarbons
 - potential value of mineral samples to the industry sector

REFLECTIONS/COMMENTS

SAMPLE LAB INVESTIGATIONS

- *Earth Science Workshop Series* (Book 1, 2 and 3), Cambridge Publishing Company
- *Science Directions 8* (Unit Four: The Earth's Crust), John Wiley & Sons

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

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N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- accurately describes an issue on which people disagree regarding an energy or mineral development
- poses an important question regarding the impact of the development on the environment and people who live there
- accesses basic in-school/community information sources regarding the issue
- uses one or more information-gathering techniques

Analyzing Perspectives

- clarifies different points of view regarding the issue:
e.g., social, economic, environmental
- states a position on the issue and logical reasons for adopting that position
- states an opposing position on the issue and logical reasons for adopting that position
- identifies sources of conflict among different positions
- distinguishes between fact and fiction/opinion/theory

Collaboration and Teamwork

- shares information and ideas appropriately among group members
- respects the views of others

Evaluating Choices/Making Decisions

- identifies useful alternatives regarding the energy or mineral development
- establishes criteria for assessing each alternative:
e.g., social, economic, environmental
- _____
- selects an appropriate alternative regarding the energy or mineral development based on established criteria
- reflects on strengths/weaknesses of choices and/or decisions made by considering consequences; e.g.:
 - sustainable development
 - other quality of life factors
- _____
- communicates information in a logical sequence to justify choices/decisions made
- _____

REFLECTIONS/COMMENTS

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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

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N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- accurately describes an issue on which people disagree regarding use of renewable/nonrenewable energy
- poses an important question regarding the impact of energy use on the environment and people who live there
- accesses basic in-school/community information sources regarding the issue
- uses one or more information-gathering techniques

Analyzing Perspectives

- clarifies different points of view regarding the issue:
e.g., social, economic, environmental
- states a position on the issue and logical reasons for adopting that position
- states an opposing position on the issue and logical reasons for adopting that position
- identifies sources of conflict among different positions
- distinguishes between fact and fiction/opinion/theory

Collaboration and Teamwork

- shares information and ideas appropriately among group members
- respects the views of others

Evaluating Choices/Making Decisions

- identifies potential options for dealing with the issues that further sustainable energy supply
- establishes criteria for assessing each alternative:
e.g., social, economic, environmental

- develops a plan for dealing with the issue, based on established criteria, which furthers sustainable energy supply
- reflects on strengths/weaknesses of the plan by considering consequences; e.g.:
 - sustainable development
 - other quality of life factors
- _____
- communicates information in a logical sequence to justify choices/decisions made
- _____

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
Information Gathering	4	3	2	1	0	N/A
Implementing the Project	4	3	2	1	0	N/A
Collaboration and Teamwork	4	3	2	1	0	N/A

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N/A Not applicable

TASK CHECKLIST

The student:

Preparation and Planning

- develops a rationale for/awareness of the recycling project
- sets goals and establishes steps to achieve them
- creates and follows timelines
- plans and uses time effectively

Information Gathering

- accesses relevant sources of information in the home, school and/or community
- identifies recyclable materials and potential products to be made through the recycling process
- establishes recycling steps, techniques and processes
- identifies requirements regarding:
 - location
 - facility
 - equipment and materials
- considers costs and benefits relevant to the recycling project

Implementing the Project

- accesses necessary facilities, equipment and materials
- advertises and promotes the recycling project within the home, school and/or community
- demonstrates personal initiative in assuming and delegating responsibilities
- successfully implements the recycling project
- monitors the recycling project and modifies processes/responsibilities as required to achieve goals
- _____
- _____

Collaboration and Teamwork

- works with a range of peer members
- shares work and responsibilities among group members
- shares information/suggestions through group discussion
- negotiates solutions to problems
- solicits the support of others
- _____
- _____

REFLECTIONS/COMMENTS

SAMPLE RECYCLING PROJECTS:

- Paper Recycling
- Making and Selling Compost
- Recycling Tires into Rubber Mats
- Recycled Jewellery
- Note Pads From Scrap Paper

RESOURCES:

- *Somebody Should Do Something About This! A Teacher's Resource Book on Energy and the Environment*
- *What We Can Do For Our Environment: Hundreds of Things to Do Now*

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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

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TASK CHECKLIST

The student:

Preparation and Planning

- sets goals and follows instructions accurately
- adheres to established timelines
- responds to directed questions and follows necessary steps to find answers
- uses time effectively

Information Gathering and Processing

- accesses basic in-school/community information sources
- uses one or more information-gathering techniques
- interprets and organizes information in a logical sequence
- records information accurately using correct technical terms
- distinguishes between fact and fiction/opinion/theory
- responds to feedback when current approach is not working

Content

- identifies the products and/or services provided by a recycling industry
- describes inputs to processing within the industry; e.g.:
 - commodity inputs/raw materials
 - financial resources
 - human and natural resources
 - technology
- explains major stages and steps in recycling the waste material; e.g.:
 - collecting and sorting
 - processing/product formation
 - transportation and storage

Content (continued)

- explains techniques used to control quality within the recycling industry; e.g.:
 - inspection/sorting of raw materials
 - product quality and uniformity
- describes transportation and storage requirements, and their impact on industry location and recycling costs
- identifies environmental standards and concerns that affect the recycling industry; e.g.:
 - water, soil and air quality
 - use of energy and other resources
- considers factors that affect the economic viability of the recycling industry; e.g.:
 - collecting, sorting, processing and transportation costs
 - potential markets for the product or service
 - relative cost of waste disposal by other means
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members

Information Sharing

- demonstrates effective use of one or more communication media:
 - e.g., written, oral, audio-visual*
- communicates ideas in a logical sequence
- uses correct grammatical convention and technical terms
- cites three or more basic information sources

REFLECTIONS/COMMENTS

TASK	OBSERVATION/RATING					
Preparation and Planning	4	3	2	1	0	N/A
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- accesses basic in-school/community information sources
- uses one or more information-gathering techniques
- interprets and organizes information in a logical sequence
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Content

- identifies environmental factors related to the extraction, processing and use of an energy or mineral resource; e.g.:
 - land use practices
 - soil, water and air quality
 - wildlife habitat and natural areas
- makes forecasts regarding environmental change at global levels caused by resource development; e.g.:
 - deforestation
 - greenhouse effect
 - acid deposition

Content (continued)

- identifies short- and long-term benefits and costs related to the extraction, processing and use of an energy/mineral resource
- explains strategies used by industry to protect the environment; e.g.:
 - waste/emission control
 - soil, water and air quality sampling
 - wildlife/habitat protection
 - site reclamation
 - compliance with environmental policy
 - research and development
- cites an environmental “success story” with respect to an energy/mineral industry
- _____
- _____

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members

Information Sharing

- demonstrates effective use of one or more communication media:
 - e.g., written, oral, audio-visual*
- communicates ideas in a logical sequence
- uses correct grammatical convention and technical terms
- cites three or more basic information sources

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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N/A Not applicable

ASSESSMENT CRITERIA

The student:

Preparation and Planning

- sets goals and follows instructions accurately
- responds to directed questions and follows necessary steps to find answers
- accesses basic in-school/community information sources
- interprets and organizes information into a logical sequence
- records information accurately using correct technical terms
- uses time effectively

Content

- provides definitions and examples of conservation and preservation
- describes current demands placed on an energy/mineral resource in Alberta and Canada; e.g.:
 - residential
 - commercial
 - industrial
- provides a rationale for conserving the resource based on:
 - patterns/trends in consumption
 - sustainable development
 - environmental impact

Content (continued)

- outlines major components of a strategy for conserving the resource; e.g.:
 - reduced consumption
 - energy alternatives/material substitutes
- explains how specific conservation practices foster sustainable development and benefit society
- identifies supporting agencies/structures at local, national and international levels; e.g.:
 - public
 - private

Presenting/Reporting

- demonstrates effective use of one or more communication media:
 - e.g., *Written: spelling, punctuation, grammar basic format*
 - Oral: voice projection, body language*
 - Audio-Visual: techniques, tools*
- uses correct grammatical convention and technical terms through proofreading/editing
- provides an introduction that describes the purpose of the project
- communicates information in a logical sequence
- states a conclusion based on a summary of facts
- provides a reference list of three or more basic information sources

REFLECTIONS/COMMENTS

INFERENCE

Definition: to derive a conclusion from facts or premises

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

Criteria for Assessing Inferences

Inferences made in introductory-level modules should not be assessed as right or wrong. Instead, inferences should be considered valid if they are communicated in a logical sequence with sufficient supporting detail. The type of information used to derive a conclusion is important in determining the validity of the inference.

Each inference regarding the impact of lifestyle practices on an energy or mineral resource should provide:

- a 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
- a conclusion that is realistic in light of the information gathered

Journal of Lifestyle Practices

The journal will include 10 or more entries that describe lifestyle practices that affect an energy or mineral resource. Activities may be seasonal in nature, 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 the resource and/or environment.

Journal entries may reference activities that:

- involve direct consumption of energy or minerals; e.g.:
 - using an automobile
 - turning on an electric light
- influence energy or mineral resources in indirect ways.

Reference: *A Primer on Environmental Citizenship, Environment Canada*

STANDARD: Complete 10 journal entries that address criteria for inferences to a standard of 1 on the rating scale.

RATING SCALE

The student:

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.

CONSERVATION CONTRACT

I, _____ on this _____ day in the month of _____
in the year of _____, do declare my commitment to pursue lifestyle
practices that foster conservation and responsible use of energy and minerals.

According to the terms of this contract, I will:

- demonstrate commitment to responsible lifestyle practices, including
 - a) _____
 - b) _____
 - c) _____
 - d) _____
 - e) _____
- maintain a “*Conservation Log*” of daily activities that support environmental stewardship.

Signed _____

Witness _____