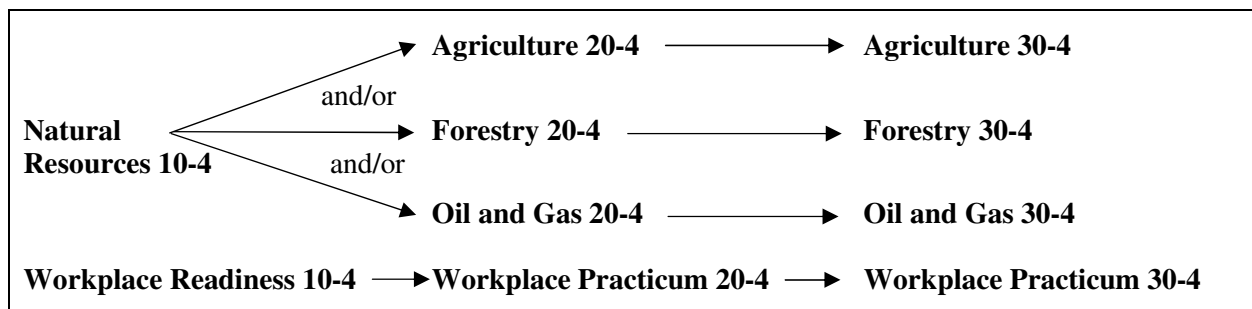


KNOWLEDGE AND EMPLOYABILITY NATURAL RESOURCES

COURSE SEQUENCE



Knowledge and Employability 10-level courses provide opportunities for *exploration* of, and *orientation* toward, an occupational grouping in a single career field. In 20-level courses, students progress from *orientation* toward *preparation*, and in 30-level courses students are involved in *preparation* for direct job entry.

Natural Resources courses are designed to teach occupational knowledge and skills for entry-level positions in agriculture, forestry and natural gas by developing employability competencies that relate to all career paths.

- All courses focus on developing career awareness, safety standards and knowledge of tools, equipment and materials related to the industry.
- Natural Resources 10-4 provides a basis for, and an introduction to, Agriculture 20-4, Forestry 20-4 and Oil and Gas 20-4. Natural Resources 10-4 focuses on harvesting and processing practices for each industry addressed in the strand.
- Agriculture 20-4 and 30-4 focus on practical experience with land and crop development and livestock care and feeding.
- Students interested in agriculture should be encouraged to take courses in the horticulture stream or transition to the Green Certificate Program.
- Forestry 20-4 and 30-4 focus on mapping, harvesting and processing equipment and practices; forest fire management; environmentalism and field preparation.
- Oil and Gas 20-4 and 30-4 focus on processing equipment and practices, energy source identification, resource management and field preparation.
- A related Workplace Practicum or Work Experience course is recommended to further enhance employability and occupational skills and to adequately prepare students for entry into the work force. In senior high school, a 30-level Workplace Practicum course, 30-level Work Experience course or 30-level Green Certificate course is required to fulfill the requirements of a Certificate of High School Achievement. Workplace practicums are supportive work placements in a related field that will allow students to validate their learning in the workplace.

COURSE DELIVERY

This Knowledge and Employability occupational strand includes three sequences of 5-credit courses. Students progress through the courses in a sequence and may combine courses across sequences to increase the depth of their knowledge.

The 10-level course is a prerequisite for any of the 20-level courses in the strand. The 20-level course in each sequence is a prerequisite for the 30-level course in that sequence.

The occupational courses may be offered in a variety of learning environments that range from a classroom in a school to a business/industry work site. The courses offer a balance between school-based and work-based learning that provides options for students to enter the workplace or to pursue post-secondary education or training.

GOALS

Students in Knowledge and Employability occupational courses will:

- identify standards determined by the workplace for the academic and occupational competencies considered necessary for success
- demonstrate practical applications through on- and off-campus experiences/community partnerships
- experience career development to assist them in exploring careers, assessing their career skills and developing a career-focused portfolio
- develop interpersonal skills to ensure respect, support and cooperation with others
- develop safety awareness and habits to ensure a safe working environment.

COMPETENCIES FRAMEWORK

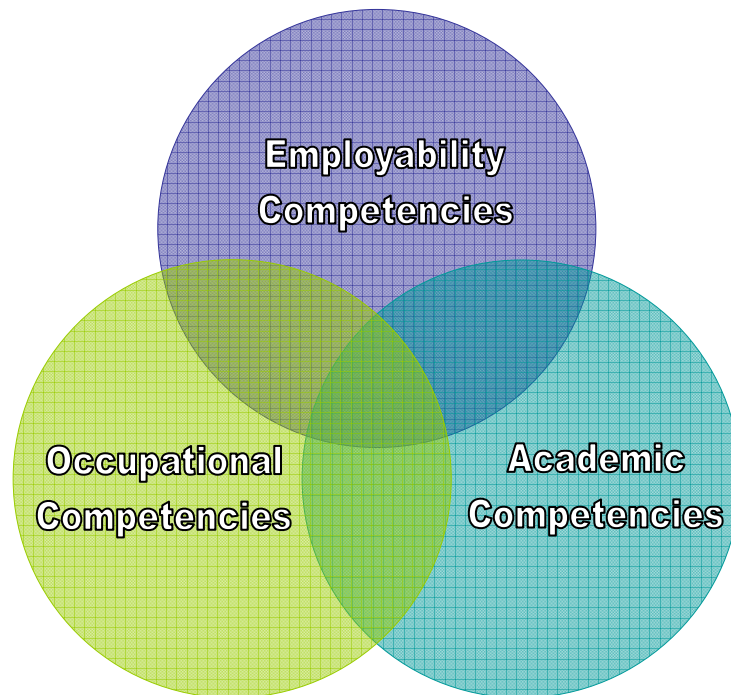
Each Knowledge and Employability occupational course is made up of three elements: employability, occupational and academic competencies. The combination of these three elements is essential to the delivery of the occupational courses.

- Employability competencies are transferable to all occupations and are consistent throughout all courses.

- Occupational competencies are specific to an occupational area and provide the context through which students will develop their employability competencies.
- Academic competencies are to be reinforced and further developed through the occupational context that provides relevance to the academic courses.

The integration of the three elements is essential to equip students to make the transition from school to the workplace.

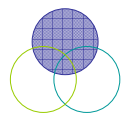
KNOWLEDGE AND EMPLOYABILITY OCCUPATIONAL COURSES COMPETENCIES FRAMEWORK



NATURAL RESOURCES 10-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will develop an awareness of how learning contributes to personal success. • Students will develop an ability to manage change effectively. • Students will explore and discover personal aptitudes and interests related to occupational opportunities.
Personal Management	<ul style="list-style-type: none"> • Students will develop self-esteem, confidence and the ability to set personal goals and priorities. • Students will identify and understand the risks associated with occupational activities.
Working with Others	<ul style="list-style-type: none"> • Students will develop communication skills and strategies in an occupational context. • Students will demonstrate respect for the thoughts and opinions of others in the group. • Students will demonstrate positive effort and behaviour toward achieving a group's goals.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will explore a variety of occupations within a natural resources career environment. • Students will develop basic safe workplace practices and procedures. • Students will develop a basic understanding of natural resources products and services. • Students will identify basic mapping skills and identify land allocation for each industry. • Students will identify processes for growing and locating resources. • Students will identify methods for harvesting agriculture, forestry and oil and gas products.
Ensuring Quality	<ul style="list-style-type: none"> • Students will develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will enhance their ability to listen, speak, read and write effectively.
Thinking	<ul style="list-style-type: none"> • Students will develop problem-solving strategies.
Numeracy	<ul style="list-style-type: none"> • Students will understand the value of numeracy skills in the workplace.
Information Technology	<ul style="list-style-type: none"> • Students will familiarize themselves with the information technology used in daily workplace operation.

NATURAL RESOURCES 10-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will develop an awareness of how learning contributes to personal success.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify learning preferences and strengths and apply learning styles and strategies appropriate to the situation • set learning goals and identify how formal/informal learning can help them achieve goals • develop an awareness of senior high school courses and work experience and identify educational possibilities; e.g., Registered Apprenticeship Program (RAP), Green Certificate, Career and Technology Studies (CTS) and Career Internship.
<p>Students will develop an ability to manage change effectively.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify available support resources and assess potential barriers • prepare an action plan to proactively respond to a particular change or challenge.
<p>Students will explore and discover personal aptitudes and interests related to occupational opportunities.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • create an inventory of personal competencies, interests, goals and work preferences and link this inventory to career options • identify sources of support for investigating and finding work; e.g., Alberta Learning Information Service (ALIS) Web site (http://www.alis.gov.ab.ca) • describe how work contributes to individual goals • explore the workplace through community partnerships and identify employer and employee expectations, rights and responsibilities.

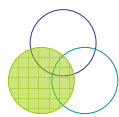
PERSONAL MANAGEMENT

General Outcomes	Specific Outcomes
<p>Students will develop self-esteem, confidence and the ability to set personal goals and priorities.</p>	<p>Self-development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify personal characteristics, strengths and talents and establish an action plan to build on them • recognize the use of strengths and talents to achieve goals • identify acceptable and appropriate behaviours and present themselves to suit an activity or role; e.g., body language, grooming, clothing, manners • describe personal beliefs about what is right and wrong and assess the consequences of ethical/unethical behaviours.
<p>Students will identify and understand the risks associated with occupational activities.</p>	<p>Risk Management</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify current health and safety procedures; e.g., at home, at school, in the community and in the workplace • identify risks that could impact themselves and others and identify hazards in the work environment; e.g., chemical, physical, biological and ergonomic • identify a potential emergency situation and develop strategies for personal emergency responses • identify sources of support when taking risks in their personal lives and in the workplace; e.g., entrepreneurship.

WORKING WITH OTHERS

<p>Students will develop communication skills and strategies in an occupational context.</p>	<p>Interpersonal Communication</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • demonstrate appropriate communication strategies for communicating thoughts and feelings; e.g., <ul style="list-style-type: none"> – listen without interrupting – contribute to be heard – disagree courteously – accept conflicting opinions – use appropriate language and body language • develop awareness of verbal and nonverbal communication strategies • improve their ability to communicate by working with others • communicate common goals and expectations to improve their team's ability to achieve goals • identify causes of conflict.
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General Outcomes	Specific Outcomes
<p>Students will demonstrate respect for the thoughts and opinions of others in the group.</p>	<p>Building Community</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify commonly accepted courteous behaviour • assess and respect how their personal values and beliefs differ from those of others and how those beliefs impact personal behaviour • identify the value of volunteering in community activities; e.g., charity work, community car wash.
<p>Students will demonstrate positive effort and behaviour toward achieving a group's goals.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify team goals • work independently and with others to support team goals; e.g., <ul style="list-style-type: none"> – generate ideas – assess resources – contribute abilities and interests – monitor progress – share responsibility for completion of a task • establish short- and long-term team goals.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will explore a variety of occupations within a natural resources career environment.</p>	<p>Career Awareness</p> <p>Exploration</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify employment opportunities within a career field; e.g., identify local harvesting and processing operations • define and recognize entrepreneurship as a potential career path • research employment information; e.g., duties, working conditions, personal characteristics, education, salary. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – clean the entire work area, return tools to designated areas, minimize the waste of materials – identify related health and sanitation standards – display punctuality and come prepared for classroom and laboratory activities – treat the laboratory area with care and with attention to potential workplace health and safety risks – treat other members of the team with respect – use appropriate language and terminology – wear appropriate dress.
<p>Students will develop basic safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify and demonstrate preventive measures to avoid accidents and injury to themselves and others; e.g., <ul style="list-style-type: none"> – identify safety device locations in the laboratory or classroom; e.g., eyewash station, emergency shut-off, fire extinguisher, emergency exits, telephone – demonstrate the correct procedures for addressing injuries

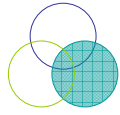
General Outcomes	Specific Outcomes
<p>Students will develop a basic understanding of natural resources products and services.</p>	<ul style="list-style-type: none"> – identify the proper use of tools with regard to other classmates and laboratory conditions – identify personal protective equipment (PPE); e.g., coveralls, proper eyewear, proper footwear – demonstrate proper body position while at a work station – maintain a safe and clean work area – identify and practise the safe use of electrical equipment • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements. <p>Products and Services</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify natural resources industries in Canada • recognize how natural resources are used to create products • define producers, consumers and products • identify producers, consumers and products in the agriculture, forestry and oil and gas industries • identify the steps used to distribute harvested products to consumers • identify major determinants of production; e.g., <ul style="list-style-type: none"> – climate – soil and water – supply and demand – available equipment – labour – transportation.
<p>Students will identify basic mapping skills and identify land allocation for each industry.</p>	<p>Mapping/Land Allocation</p> <p>Mapping</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify basic mapping skills; e.g., <ul style="list-style-type: none"> – compass rose, intermediate and cardinal directions – grid patterns – latitude/longitude – symbols and legends – scales/distance – landmarks – reading a road map – plotting a route

General Outcomes	Specific Outcomes
	<ul style="list-style-type: none"> • identify types of maps; e.g., <ul style="list-style-type: none"> – topographical or contour – base – soil type – geological – forest stands or types – road • identify topographical mapping processes; e.g., elevations and depressions. <p>Compass</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the basic functions of a compass • use a compass and a map together to locate destinations • demonstrate orienteering skills. <p>Land Allocation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • recognize that land is a natural resource; e.g., ownership, utilization • identify the basic origins of soil; e.g., topsoil, subsoil and parent material • recognize the causes of soil erosion; e.g., water, wind • identify resource allocation per section of land • identify land classification terminology; e.g., acre, quarter and a half • compare the current variety and value of Alberta’s land resources; e.g., <ul style="list-style-type: none"> – recreation and aesthetics – wildlife habitat – fibre production – range lands – coal and petroleum projects – hunting and trapping – water, air and soil quality – ecosystem maintenance – job creation.

General Outcomes	Specific Outcomes
<p>Students will identify processes for growing and locating resources.</p>	<p>Growing and Locating Resources</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify resource locations in Alberta • identify licensing or other requirements when establishing land allocation • identify government controls over natural resources and products • identify various sources of energy and where they are found; e.g., <ul style="list-style-type: none"> – renewable; e.g., sun/solar, wind, water, earth/geothermal – nonrenewable; e.g., minerals, oil and gas • identify useable land for each resource; e.g., livestock and crops, trees, oil and gas • identify possible yields for various resources • identify planting and seeding processes for agricultural and forestry crop production • identify locating procedures; e.g., <ul style="list-style-type: none"> – satellite imagery – aerial photographs – land surveys – geological surveys – seismic exploration • identify environmental factors related to land allocation for resource extraction or harvesting; e.g., <ul style="list-style-type: none"> – land-use practices – soil and water quality – wildlife habitat – recreation and natural areas.
<p>Students will identify methods for harvesting agriculture, forestry and oil and gas products.</p>	<p>Harvesting</p> <p>Agriculture, Forestry and Oil and Gas</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the tools and equipment used for different harvesting methods • determine when and how much to harvest per resource, within the parameters of a sustainable yield • identify how technology has resulted in changes in the harvesting of natural resources • identify harvesting methods for: <ul style="list-style-type: none"> – agricultural resources; e.g., butchering livestock, swathers and combines, forage harvesting – forestry resources; e.g., clearcutting, selective cutting, shelter wood cutting – oil and gas resources; e.g., drilling, cracking and fractionating, chemical processes.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will enhance their ability to listen, speak, read and write effectively.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • read, view and interpret information presented in a variety of forms, including texts, videos, graphs, charts, diagrams, manuals • identify a purpose for writing • print or write legibly, spell accurately and apply rules of grammar to construct texts • listen and ask questions to expand information and to appreciate the points of view of others.

THINKING

<p>Students will develop problem-solving strategies.</p>	<p>Problem Solving</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify and define, and ask relevant questions to clarify, the problem • evaluate the results in terms of expected outcomes.
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NUMERACY

<p>Students will understand the value of numeracy skills in the workplace.</p>	<p>Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems • use calculators or computers to perform calculations involving large and small numbers when solving problems • apply concepts of rate, ratio, percentage and proportion to solve problems in a meaningful context • demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals • estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area • use metric and imperial units of measure.
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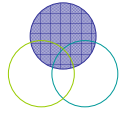
INFORMATION TECHNOLOGY

General Outcomes	Specific Outcomes
<p>Students will familiarize themselves with the information technology used in daily workplace operation.</p>	<p>Computer Operations</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the most appropriate technology tool for the task; e.g., fax, e-mail, networks, telephone• identify appropriate telephone operations; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• identify basic computer operations; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• identify procedures for connecting and using audio, video and digital equipment• identify procedures for sending and receiving faxes and setting up a fax machine• identify procedures for copying and printing documents.

AGRICULTURE 20-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will apply their abilities and interests toward achieving learning goals. • Students will practise the skills and abilities needed to manage change. • Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities. • Students will understand risks and be accountable for their actions.
Working with Others	<ul style="list-style-type: none"> • Students will practise effective communication skills and strategies in an occupational context. • Students will demonstrate the ability to understand and work within the culture of a group. • Students will plan and make decisions with others.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will orient themselves toward an occupation within an agriculture career environment. • Students will demonstrate basic safe workplace practices and procedures. • Students will develop the knowledge and skills required to identify and care for soil. • Students will develop an understanding of various crops and their economic value. • Students will develop an understanding of livestock care and feeding. • Students will understand marketing principles as they relate to the sale of agricultural products.
Ensuring Quality	<ul style="list-style-type: none"> • Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills.
Thinking	<ul style="list-style-type: none"> • Students will apply creative thinking skills to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will apply mathematical concepts to solve occupational problems.
Information Technology	<ul style="list-style-type: none"> • Students will enhance their performance by using information technology to help complete tasks.

AGRICULTURE 20-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will apply their abilities and interests toward achieving learning goals.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • relate learning preferences and strengths to formal and informal learning opportunities and identify post-secondary opportunities within the related field • assess learning goals and current competencies, identify competencies needing development and identify and prioritize learning goals • create a pathway of senior high school courses to reflect learning goals • identify educational possibilities; e.g., Registered Apprenticeship Program (RAP), Green Certificate, Career and Technology Studies (CTS) and Career Internship.
<p>Students will practise the skills and abilities needed to manage change.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify goals, responsibilities and commitments • assess and reflect on the success of an action plan; e.g., <ul style="list-style-type: none"> – create alternative choices to deal with unexpected change – identify stressors in personal environments that they can and cannot change • identify the need for personal support and create an inventory of available personal and community sources of support.
<p>Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess work preferences and nonpreferences (e.g., indoor, outdoor, shift work), assess life/work options and outline career goals and paths • work in and seek out a variety of roles and responsibilities • measure and celebrate personal contributions to workplace goals; e.g., paid, unpaid or volunteer work • orient themselves to the workplace through community partnerships and assess personal performance in terms of workplace expectations.

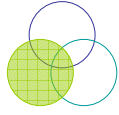
PERSONAL MANAGEMENT

General Outcomes	Specific Outcomes
Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities.	Self-development <i>Students will:</i> <ul style="list-style-type: none">• re-evaluate an action plan to develop strengths and talents• use strengths and talents to achieve personal goals• clarify acceptable and appropriate behaviours for specific activities and roles• act ethically in personal, community and workplace contexts and accept the consequences of their actions.
Students will understand risks and be accountable for their actions.	Risk Management <i>Students will:</i> <ul style="list-style-type: none">• follow health and safety procedures; e.g., at home, at school, in the community and in the workplace• identify potential hazards, take corrective action and develop and practise action plans to ensure safety• practise personal emergency responses• assess their comfort level with, and the consequences of, taking risks.

WORKING WITH OTHERS

Students will practise effective communication skills and strategies in an occupational context.	Interpersonal Communication <i>Students will:</i> <ul style="list-style-type: none">• assess the effectiveness of communication strategies used to communicate thoughts and feelings; e.g.,<ul style="list-style-type: none">– listen without interrupting– contribute to be heard– disagree courteously– accept conflicting opinions– use appropriate body language• assess verbal and nonverbal communication strategies• apply social norms to build specific relationships• demonstrate the ability to accept praise and/or criticism.
Students will demonstrate the ability to understand and work within the culture of a group.	Building Community <i>Students will:</i> <ul style="list-style-type: none">• interact with others in a courteous manner• accommodate the beliefs of others in work and personal environments and show respect for differences in beliefs, abilities, etiquette and styles of interaction• identify opportunities for participation in community growth.

General Outcomes	Specific Outcomes
<p>Students will plan and make decisions with others.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • participate effectively as group members; e.g., <ul style="list-style-type: none"> – generate ideas – assess resources – contribute abilities and interests – monitor progress – share responsibility for completion of a task • assume various roles within a group; e.g., leadership • clarify the expected outcomes of teamwork.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will orient themselves toward an occupation within an agriculture career environment.</p>	<p>Career Awareness</p> <p>Orientation</p> <p>Students will:</p> <ul style="list-style-type: none"> • identify entry-level competencies • identify post-secondary opportunities • recognize entrepreneurial opportunities within the industry • match their personal interests to their job search; e.g., <ul style="list-style-type: none"> – identify sources of support for investigating and finding work – describe entry-level requirements – recognize potential career ladders • identify local opportunities within a career field; e.g., <ul style="list-style-type: none"> – identify local agricultural products – identify local agricultural production and processing occupations • research employment information; e.g., duties, working conditions, personal characteristics, education, salary • define agriculture. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • develop workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – use safe and sanitary practices – demonstrate pride in themselves – demonstrate pride in their work performance – show respect for others – respect the property of others.

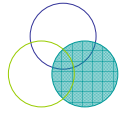
General Outcomes	Specific Outcomes
<p>Students will demonstrate basic safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify safety device locations and procedures within the workplace environment • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • select and wear personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • handle and properly dispose of environmentally hazardous materials • recognize the health and safety hazards associated with farming; e.g., <ul style="list-style-type: none"> – farm buildings – machines – livestock – personal safety – chemical awareness • identify safety guards, shields, devices and warning signs on farm equipment.
<p>Students will develop the knowledge and skills required to identify and care for soil.</p>	<p>Land</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • list and describe land-produced agricultural products • identify the composition of soil; e.g., mineral and organic content, air, water • take and test soil samples • explain the causes of soil erosion • identify various land-care equipment • describe the physical features of soil; i.e., texture, structure, porosity.

General Outcomes	Specific Outcomes
<p>Students will develop an understanding of various crops and their economic value.</p>	<p>Crop Production</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the major parts and functions of plants; e.g., roots, stems, leaves, flowers • identify and describe basic plant processes; e.g., <ul style="list-style-type: none"> – photosynthesis and its place in the food chain – respiration – transpiration • identify local agricultural crops • list plants of economic importance; e.g., <ul style="list-style-type: none"> – fruit trees – ornamentals – cereals – vegetables – small fruits – trees • identify local agricultural organizations • describe the operation of a grain elevator • identify the processes used to germinate seeds under varied conditions • list the purposes and types of fertilizers • identify the processes used to grow and manage a selected crop; i.e., <ul style="list-style-type: none"> – prepare the seed bed – seed – cultivate – harvest – store the crop • identify the processes used to grow and manage a variety of crops; e.g., <ul style="list-style-type: none"> – in a protective environment – in natural environments • describe the reasons for crop rotation • identify dangers to crops; e.g., weather, weeds, insects.

General Outcomes	Specific Outcomes
<p>Students will develop an understanding of livestock care and feeding.</p>	<p>Livestock Production</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify various classes of livestock; e.g., cattle, pigs, sheep, chickens • identify the basic needs of livestock; i.e., food, water, shelter • develop a positive attitude toward livestock care and management; e.g., owner commitment and owner care • recognize methods of handling and showing livestock • recognize the basic principles of livestock nutrition; e.g., identify feed and feeding practices • identify livestock digestive systems; e.g., for ruminants and nonruminants.
<p>Students will understand marketing principles as they relate to the sale of agricultural products.</p>	<p>Agricultural Marketing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify agricultural production-related industries • identify the major determinants of production; e.g., <ul style="list-style-type: none"> – climate – soil and water – supply and demand – available equipment – labour – transportation • identify current market information/prices; e.g., when to buy, when to sell • identify marketing options when selling agricultural products; e.g., <ul style="list-style-type: none"> – direct producer marketing – open markets – marketing boards – cooperatives.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will demonstrate effective listening, speaking, reading and writing skills.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read, view and interpret occupation-related materials; e.g.,<ul style="list-style-type: none">– use related occupational terms– identify occupation-related literature– interpret and follow written instructions• select and create a text format to suit a purpose and audience, e.g., forms, letters, reports, memos, résumés, and:<ul style="list-style-type: none">– describe uses of writing skills in related occupations– write a letter of inquiry– write a letter of thanks– complete job applications• listen and present information in a clear, concise manner; e.g.,<ul style="list-style-type: none">– listen attentively to organize and classify information and ideas– organize main ideas and key messages with clarity.

THINKING

Students will apply creative thinking skills to solve problems.

Problem Solving, Decision Making and Creative Thinking

Students will:

- apply a problem-solving model to identify the problem/issue
- identify appropriate actions and develop several alternatives for each promising idea
- evaluate the results, in terms of expected outcomes related to the initial problem, and evaluate personal satisfaction with the outcome of the idea; e.g., product/process.

NUMERACY

General Outcomes	Specific Outcomes
<p>Students will apply mathematical concepts to solve occupational problems.</p>	<p>Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion to solve problems in a meaningful context• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

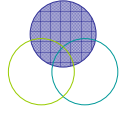
INFORMATION TECHNOLOGY

<p>Students will enhance their performance by using information technology to help complete tasks.</p>	<p>Computer Operations and Computer Applications</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate appropriate language and etiquette when using information technology• demonstrate appropriate telephone operations; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• demonstrate basic computer operations to complete a task; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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AGRICULTURE 30-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will consistently demonstrate personal discovery and continuous learning. • Students will manage change effectively to support their goals. • Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will exhibit self-esteem and confidence through the achievement of personal goals. • Students will manage risks to achieve both personal and workplace goals.
Working with Others	<ul style="list-style-type: none"> • Students will model effective communication skills and strategies in the home, school, community and workplace. • Students will promote equity in work and community endeavours. • Students will demonstrate the ability to complete tasks in a team environment.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will prepare for entry-level employment within an agriculture career environment. • Students will demonstrate entry-level standards of safe workplace practices and procedures. • Students will develop knowledge and skills to properly prepare soil for agricultural uses. • Students will demonstrate an understanding of crop care and maintenance. • Students will demonstrate an understanding of animal care and ownership. • Students will understand marketing principles as they relate to the sale of agricultural products. • Students will investigate possible entry-level positions within the agriculture industry.
Ensuring Quality	<ul style="list-style-type: none"> • Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.
Thinking	<ul style="list-style-type: none"> • Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.
Information Technology	<ul style="list-style-type: none"> • Students will demonstrate the effective use of information technology to perform daily workplace operations.

AGRICULTURE 30-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will consistently demonstrate personal discovery and continuous learning.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify learning opportunities related to learning goals, commitments and resources; e.g., <ul style="list-style-type: none"> – identify opportunities for further education/training – locate needed financial support systems – locate needed personal support systems • practise what has been learned to build competence and confidence and evaluate the application of competencies to learning goals • create a plan that demonstrates continuous learning; e.g., <ul style="list-style-type: none"> – analyze requirements for graduation and for further education/training – modify a learning plan to reflect requirements and opportunities.
<p>Students will manage change effectively to support their goals.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • prioritize and assign resources to meet commitments and goals • prioritize commitments and goals to achieve a balanced lifestyle • redefine an action plan as situations change; e.g., <ul style="list-style-type: none"> – use adaptive strategies – redefine personal goals – select personal coping mechanisms • access available and appropriate sources of support • identify opportunities for improvement and innovation; e.g., entrepreneurship.

General Outcomes	Specific Outcomes
<p>Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • analyze elements of job satisfaction; e.g., recognition, environment, pay, benefits, prestige • build personal career paths and networks • analyze how work contributes to societal and economic needs and a sense of responsibility • prepare for employment through community partnership activities and organize and complete specific job tasks effectively and efficiently.

PERSONAL MANAGEMENT

Students will exhibit self-esteem and confidence through the achievement of personal goals.

Self-development

Students will:

- continue to create a long-term self-development plan in which they consider accomplishments and redefine self-development goals
- demonstrate entry-level self-presentation appropriate to the activity and role
- maintain a high standard of personal ethics when interacting with others.

Students will manage risks to achieve both personal and workplace goals.

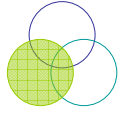
Risk Management

Students will:

- maintain health and safety procedures; e.g., at home, at school, in the community and in the workplace
- monitor success in reducing the impact of hazards on themselves and others
- demonstrate concern for the safety of others by exhibiting appropriate behaviour in the workplace
- work with others to respond to emergencies
- take planned risks to contribute to personal growth.

WORKING WITH OTHERS

General Outcomes	Specific Outcomes
<p>Students will model effective communication skills and strategies in the home, school, community and workplace.</p>	<p>Interpersonal Communication</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• communicate thoughts and feelings appropriately; e.g.,<ul style="list-style-type: none">– listen without interrupting– contribute to be heard– disagree courteously– accept conflicting opinions– use appropriate body language• maintain a balance between speaking, listening and responding• work together to achieve goals• demonstrate the ability to deal constructively with conflict.
<p>Students will promote equity in work and community endeavours.</p>	<p>Building Community</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate and model courteous behaviour in daily interactions• demonstrate respect for others and a shared understanding of diverse beliefs, etiquette and styles of interaction• assess their personal contribution to community growth.
<p>Students will demonstrate the ability to complete tasks in a team environment.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• assess the effectiveness of group and personal contributions; e.g.,<ul style="list-style-type: none">– generate ideas– assess resources– contribute abilities and interests– monitor progress– share responsibility for completion of a task• expand their abilities to contribute to team goals.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will prepare for entry-level employment within an agriculture career environment.</p>	<p>Career Awareness</p> <p>Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess entry-level competencies • recognize opportunities for further education/training • select post-secondary opportunities • identify local entrepreneurs • establish contacts with local businesses/industries • present marketable skills and strengths; e.g., <ul style="list-style-type: none"> – write a letter of application – prepare a résumé – complete application forms – identify contacts and references – collect evidence of competencies in a portfolio. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • demonstrate workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – demonstrate effective human relations techniques in the workplace – practise safety in the workplace – demonstrate acceptable verbal and nonverbal communication skills – practise personal and public hygiene procedures – demonstrate entry-level competency in tools and equipment usage – use supplies correctly – follow good storage practices – demonstrate pride in their work performance – demonstrate a willingness to work – demonstrate respect for others – follow accepted principles and procedures – recognize opportunities for further education/training.

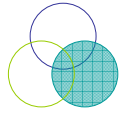
General Outcomes	Specific Outcomes
<p>Students will demonstrate entry-level standards of safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify and explain the use of safety devices within the workplace • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate a prework and postwork hazard assessment • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • model safety consciousness by selecting and wearing personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • recognize the health and safety hazards associated with farming procedures; e.g., machines, livestock, personal safety.
<p>Students will develop knowledge and skills to properly prepare soil for agricultural uses.</p>	<p>Land</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • analyze soil; e.g., pH, organic matter, chemical composition • describe micro-organisms and macro-organisms in soil • demonstrate entry-level operation of fertilizing and land-care equipment • develop an understanding of the storage and handling procedures for various types of fertilizer • identify purposes for cultivating; e.g., <ul style="list-style-type: none"> – identify operating procedures for cultivating equipment – identify the appropriate width and depth ranges of equipment.

General Outcomes	Specific Outcomes
<p>Students will demonstrate an understanding of crop care and maintenance.</p>	<p>Crop Production</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify weed- and pest-control products • identify safe operation procedures for a variety of crop-production processes, equipment and tools; e.g., <ul style="list-style-type: none"> – tillage – combine – swathers – forage – seeding • perform basic maintenance on crop-production equipment and tools; e.g., identify proper equipment-storage procedures • identify proper grain-storage procedures • identify cultivation and seeding practices • demonstrate safe work practices • identify the benefits and procedures for setting up irrigation and pumping equipment • describe the purpose of crop insurance.
<p>Students will demonstrate an understanding of animal care and ownership.</p>	<p>Livestock</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • recognize animal identification systems; e.g., tattooing, branding, ear tagging • identify animal health practices; e.g., <ul style="list-style-type: none"> – castration – dehorning – vaccination – clipping/grooming – shearing – hoof care – parasite control • demonstrate the safe operation of livestock-handling equipment; e.g., squeeze devices, gates, cattle prods • demonstrate the ability to maintain pens and fences • describe the calving process; e.g., identify possible problems that can occur in the calving process.

General Outcomes	Specific Outcomes
<p>Students will understand marketing principles as they relate to the sale of agricultural products.</p>	<p>Agricultural Marketing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify marketing principles as they relate to the sale of animal-related products; e.g., <ul style="list-style-type: none"> – supply and demand – product quality – buying practices – advertising – packaging – consumer protection • identify trends in agriculture production in Alberta • identify factors that affect market development; e.g., <ul style="list-style-type: none"> – demographics – environmental problems – economic issues • identify reasons for change in local production processes • explain how various agricultural products are moved to market • identify market opportunities that arise from product diversification and specialization, international trade and participation in a global economy • identify available government subsidies and grants.
<p>Students will investigate possible entry-level positions within the agriculture industry.</p>	<p>Agriculture Field Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify specific site safety issues, regulations and procedures • identify equipment and machinery used in agricultural production • identify positions and related duties in agricultural: <ul style="list-style-type: none"> – land use – crop production – livestock care and ownership – marketing.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read, view and interpret occupation-related materials for a specific purpose; e.g.,<ul style="list-style-type: none">– read related health and safety documents– read terms of employment documents– follow written instructions specific to an occupational area• create text for a specific purpose that clearly communicates information; e.g.,<ul style="list-style-type: none">– write a résumé– write a job description– submit job application forms• communicate thoughts and ideas and listen to the thoughts and ideas of others to effectively complete a task; e.g.,<ul style="list-style-type: none">– follow oral instructions– give effective oral instructions when necessary.

THINKING

Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.

Problem Solving, Decision Making, Finding Information and Creative Thinking

Students will:

- demonstrate an effective problem-solving model; e.g.,
 - identify the need for a solution to a problem/issue
 - identify why information is needed; e.g., make decisions, inform, persuade
- identify appropriate actions and select and apply information that meets their purposes and needs
- evaluate the results in terms of expected outcomes and assess the impact of information on their purpose and audience.

NUMERACY

General Outcomes	Specific Outcomes
Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.	Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability <i>Students will:</i> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

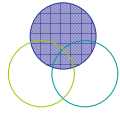
INFORMATION TECHNOLOGY

Students will demonstrate the effective use of information technology to perform daily workplace operations.	Computer Operations and Computer Applications <i>Students will:</i> <ul style="list-style-type: none">• model and assume personal responsibility for the ethical use of information technologies• demonstrate appropriate telephone operations within the workplace; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• use computer operations to assist in the completion of daily workplace operations; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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FORESTRY 20-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will apply their abilities and interests toward achieving learning goals. • Students will practise the skills and abilities needed to manage change. • Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities. • Students will understand risks and be accountable for their actions.
Working with Others	<ul style="list-style-type: none"> • Students will practise effective communication skills and strategies in an occupational context. • Students will demonstrate the ability to understand and work within the culture of a group. • Students will plan and make decisions with others.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will orient themselves toward an occupation within a forestry career environment. • Students will demonstrate basic safe workplace practices and procedures. • Students will demonstrate the functional mapping skills needed for forest location and navigation. • Students will identify the forest-management processes and procedures that create forest sustainability. • Students will identify harvesting procedures as they relate to forestry. • Students will improve their understanding of the milling process.
Ensuring Quality	<ul style="list-style-type: none"> • Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills.
Thinking	<ul style="list-style-type: none"> • Students will apply creative thinking skills to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will apply mathematical concepts to solve occupational problems.
Information Technology	<ul style="list-style-type: none"> • Students will enhance their performance by using information technology to help complete tasks.

FORESTRY 20-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will apply their abilities and interests toward achieving learning goals.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • relate learning preferences and strengths to formal and informal learning opportunities and identify post-secondary opportunities within the related field • assess learning goals and current competencies, identify competencies needing development and identify and prioritize learning goals • create a pathway of senior high school courses to reflect learning goals • identify educational possibilities; e.g., Registered Apprenticeship Program (RAP), Green Certificate, Career and Technology Studies (CTS) and Career Internship.
<p>Students will practise the skills and abilities needed to manage change.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify goals, responsibilities and commitments • assess and reflect on the success of an action plan; e.g., <ul style="list-style-type: none"> – create alternative choices to deal with unexpected change – identify stressors in personal environments that they can and cannot change • identify the need for personal support and create an inventory of available personal and community sources of support.
<p>Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess work preferences and nonpreferences (e.g., indoor, outdoor, shift work), assess life/work options and outline career goals and paths • work in and seek out a variety of roles and responsibilities • measure and celebrate personal contributions to workplace goals; e.g., paid, unpaid or volunteer work • orient themselves to the workplace through community partnerships and assess personal performance in terms of workplace expectations.

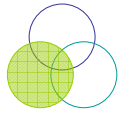
PERSONAL MANAGEMENT

General Outcomes	Specific Outcomes
<p>Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities.</p>	<p>Self-development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • re-evaluate an action plan to develop strengths and talents • use strengths and talents to achieve personal goals • clarify acceptable and appropriate behaviours for specific activities and roles • act ethically in personal, community and workplace contexts and accept the consequences of their actions.
<p>Students will understand risks and be accountable for their actions.</p>	<p>Risk Management</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • follow health and safety procedures; e.g., at home, at school, in the community and in the workplace • identify potential hazards, take corrective action and develop and practise action plans to ensure safety • practise personal emergency responses • assess their comfort level with, and the consequences of, taking risks.

WORKING WITH OTHERS

<p>Students will practise effective communication skills and strategies in an occupational context.</p>	<p>Interpersonal Communication</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess the effectiveness of communication strategies used to communicate thoughts and feelings; e.g., <ul style="list-style-type: none"> – listen without interrupting – contribute to be heard – disagree courteously – accept conflicting opinions – use appropriate body language • assess verbal and nonverbal communication strategies • apply social norms to build specific relationships • demonstrate the ability to accept praise and/or criticism.
<p>Students will demonstrate the ability to understand and work within the culture of a group.</p>	<p>Building Community</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • interact with others in a courteous manner • accommodate the beliefs of others in work and personal environments and show respect for differences in beliefs, abilities, etiquette and styles of interaction • identify opportunities for participation in community growth.

General Outcomes	Specific Outcomes
<p>Students will plan and make decisions with others.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • participate effectively as group members; e.g., <ul style="list-style-type: none"> – generate ideas – assess resources – contribute abilities and interests – monitor progress – share responsibility for completion of a task • assume various roles within a group; e.g., leadership • clarify the expected outcomes of teamwork.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will orient themselves toward an occupation within a forestry career environment.</p>	<p>Career Awareness</p> <p>Orientation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify entry-level competencies • identify post-secondary opportunities • recognize entrepreneurial opportunities within the industry • introduce themselves to local business/industry operations • match their personal interests to their job search; e.g., <ul style="list-style-type: none"> – identify sources of support for investigating and finding work – describe entry-level requirements – recognize potential career ladders. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • develop workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – use safe and sanitary practices – demonstrate pride in themselves – demonstrate pride in their work performance – show respect for others – respect the property of others.
<p>Students will demonstrate basic safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify safety device locations and procedures within the workplace environment • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials

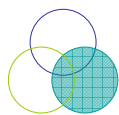
General Outcomes	Specific Outcomes
<p>Students will demonstrate the functional mapping skills needed for forest location and navigation.</p>	<ul style="list-style-type: none"> • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • select and wear personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • handle and properly dispose of environmentally hazardous materials • recognize the health and safety hazards associated with forestry procedures; e.g., <ul style="list-style-type: none"> – hand and tool safety – power tools; e.g., chain saws – small motorized vehicles; e.g., ATVs – heavy duty equipment operation. <p>Topographical Mapping</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify locations, using various map types; e.g., <ul style="list-style-type: none"> – topographical or contour – base – soil type – geological – forest stands or types – road • use technology to identify locations and find directions; e.g., global positioning system (GPS), computer software • use satellite imagery and aerial photographs to locate specific crop clusters • measure horizontal distance in the forest, using pacing and chaining skills • apply basic compass skills to establish direction in the forest; e.g., orient a map, establish and follow a bearing.

General Outcomes	Specific Outcomes
<p>Students will identify the forest-management processes and procedures that create forest sustainability.</p>	<p>Forest Management</p> <p>Fighting Fires</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • distinguish between natural and man-made fires • recognize and understand aspects of provincial firefighting budgets • identify training and employment opportunities for firefighters • identify typical firefighting equipment; e.g., <ul style="list-style-type: none"> – PPE – respirator – axe, shovel – ropes – hoses and water pumps – first aid – vehicles and aircraft • identify fire-prevention methods; e.g., fighting, clean-up, hot spots • identify firefighting procedures; e.g., <ul style="list-style-type: none"> – use of firebreaks – ground-attack firefighting – trenching – aerial bombing with water and chemical fire retardants – controlled backburning. <p>Conservation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • compare the different uses of forested regions in terms of their advantages and disadvantages; e.g., environmental, economic, social • explain the demands that are placed on forested regions in Alberta and Canada; e.g., <ul style="list-style-type: none"> – industry – recreation – wildlife – environment • describe the roles of different interest groups in managing the forest resource; e.g., <ul style="list-style-type: none"> – government – forest industry – general public – other stakeholder groups.

General Outcomes	Specific Outcomes
<p>Students will identify harvesting procedures as they relate to forestry.</p>	<p>Harvesting</p> <p>Species Identification</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify a variety of Alberta tree species; e.g., mapping species across the province • identify applications for different types of wood • identify the age and quality of various species; e.g., scaling. <p>Tools and Equipment</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify harvesting processes and equipment, from cutting down the tree to milling the wood; e.g., <ul style="list-style-type: none"> – chain saw; e.g., falling, bucking and delimiting a tree – heavy equipment; e.g., shudder, loaders, skidders, bunchers and onsite chipping • identify the advantages and disadvantages of various harvesting methods • identify the techniques and equipment used to transport logs to a sawmill; e.g., compare the use of horses with mechanical methods of transportation • recognize the implications of seasonal cutting requirements • define forest harvesting concepts and practices; i.e., sustainable yield, allowable cut, multiple use.
<p>Students will improve their understanding of the milling process.</p>	<p>Processing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify common hand and power tools and equipment used in milling processes • identify the methods used to process logs into usable lumber; e.g., <ul style="list-style-type: none"> – identify Canadian industry standards as they relate to length and cutting sizes – describe product evaluation methods • describe transportation and storage methods; e.g., identify stacking methods • identify the marketable products that are derived from all parts of the log • identify the technology used to process, refine and upgrade timber products • identify consumer trends and practices; e.g., <ul style="list-style-type: none"> – product quality – buying practices – advertising – packaging.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
Students will demonstrate effective listening, speaking, reading and writing skills.	Listening, Speaking, Reading and Writing <i>Students will:</i> <ul style="list-style-type: none">• read, view and interpret occupation-related materials; e.g.,<ul style="list-style-type: none">– use related occupational terms– identify occupation-related literature– interpret and follow written instructions• select and create a text format to suit a purpose and audience, e.g., forms, letters, reports, memos, résumés, and:<ul style="list-style-type: none">– describe uses of writing skills in related occupations– write a letter of inquiry– write a letter of thanks– complete job applications• listen and present information in a clear, concise manner; e.g.,<ul style="list-style-type: none">– listen attentively to organize and classify information and ideas– organize main ideas and key messages with clarity.

THINKING

Students will apply creative thinking skills to solve problems.

Problem Solving, Decision Making and Creative Thinking

Students will:

- apply a problem-solving model to identify the problem/issue
- identify appropriate actions and develop several alternatives for each promising idea
- evaluate the results, in terms of expected outcomes related to the initial problem, and evaluate personal satisfaction with the outcome of the idea; e.g., product/process.

NUMERACY

General Outcomes	Specific Outcomes
<p>Students will apply mathematical concepts to solve occupational problems.</p>	<p>Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion to solve problems in a meaningful context• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

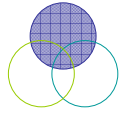
INFORMATION TECHNOLOGY

<p>Students will enhance their performance by using information technology to help complete tasks.</p>	<p>Computer Operations and Computer Applications</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate appropriate language and etiquette when using information technology• demonstrate appropriate telephone operations; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• demonstrate basic computer operations to complete a task; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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FORESTRY 30-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will consistently demonstrate personal discovery and continuous learning. • Students will manage change effectively to support their goals. • Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will exhibit self-esteem and confidence through the achievement of personal goals. • Students will manage risks to achieve both personal and workplace goals.
Working with Others	<ul style="list-style-type: none"> • Students will model effective communication skills and strategies in the home, school, community and workplace. • Students will promote equity in work and community endeavours. • Students will demonstrate the ability to complete tasks in a team environment.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will prepare for entry-level employment within a forestry career environment. • Students will demonstrate entry-level standards of safe workplace practices and procedures. • Students will demonstrate entry-level procedures for the measuring and surveying of potential land samples. • Students will identify entry-level forest-management policies and procedures. • Students will identify entry-level duties in the forestry industry.
Ensuring Quality	<ul style="list-style-type: none"> • Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.
Thinking	<ul style="list-style-type: none"> • Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.
Information Technology	<ul style="list-style-type: none"> • Students will demonstrate the effective use of information technology to perform daily workplace operations.

FORESTRY 30-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will consistently demonstrate personal discovery and continuous learning.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify learning opportunities related to learning goals, commitments and resources; e.g., <ul style="list-style-type: none"> – identify opportunities for further education/training – locate needed financial support systems – locate needed personal support systems • practise what has been learned to build competence and confidence and evaluate the application of competencies to learning goals • create a plan that demonstrates continuous learning; e.g., <ul style="list-style-type: none"> – analyze requirements for graduation and for further education/training – modify a learning plan to reflect requirements and opportunities.
<p>Students will manage change effectively to support their goals.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • prioritize and assign resources to meet commitments and goals • prioritize commitments and goals to achieve a balanced lifestyle • redefine an action plan as situations change; e.g., <ul style="list-style-type: none"> – use adaptive strategies – redefine personal goals – select personal coping mechanisms • access available and appropriate sources of support • identify opportunities for improvement and innovation; e.g., entrepreneurship.

General Outcomes	Specific Outcomes
<p>Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • analyze elements of job satisfaction; e.g., recognition, environment, pay, benefits, prestige • build personal career paths and networks • analyze how work contributes to societal and economic needs and a sense of responsibility • prepare for employment through community partnership activities and organize and complete specific job tasks effectively and efficiently.

PERSONAL MANAGEMENT

Students will exhibit self-esteem and confidence through the achievement of personal goals.

Self-development

Students will:

- continue to create a long-term self-development plan in which they consider accomplishments and redefine self-development goals
- demonstrate entry-level self-presentation appropriate to the activity and role
- maintain a high standard of personal ethics when interacting with others.

Students will manage risks to achieve both personal and workplace goals.

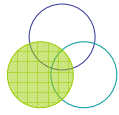
Risk Management

Students will:

- maintain health and safety procedures; e.g., at home, at school, in the community and in the workplace
- monitor success in reducing the impact of hazards on themselves and others
- demonstrate concern for the safety of others by exhibiting appropriate behaviour in the workplace
- work with others to respond to emergencies
- take planned risks to contribute to personal growth.

WORKING WITH OTHERS

General Outcomes	Specific Outcomes
<p>Students will model effective communication skills and strategies in the home, school, community and workplace.</p>	<p>Interpersonal Communication</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• communicate thoughts and feelings appropriately; e.g.,<ul style="list-style-type: none">– listen without interrupting– contribute to be heard– disagree courteously– accept conflicting opinions– use appropriate body language• maintain a balance between speaking, listening and responding• work together to achieve goals• demonstrate the ability to deal constructively with conflict.
<p>Students will promote equity in work and community endeavours.</p>	<p>Building Community</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate and model courteous behaviour in daily interactions• demonstrate respect for others and a shared understanding of diverse beliefs, etiquette and styles of interaction• assess their personal contribution to community growth.
<p>Students will demonstrate the ability to complete tasks in a team environment.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• assess the effectiveness of group and personal contributions; e.g.,<ul style="list-style-type: none">– generate ideas– assess resources– contribute abilities and interests– monitor progress– share responsibility for completion of a task• expand their abilities to contribute to team goals.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will prepare for entry-level employment within a forestry career environment.</p>	<p>Career Awareness</p> <p>Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess entry-level competencies • recognize opportunities for further education/training • select post-secondary opportunities • identify local entrepreneurs • establish contacts with local businesses/industries • present marketable skills and strengths; e.g., <ul style="list-style-type: none"> – write a letter of application – prepare a résumé – complete application forms – identify contacts and references – collect evidence of competencies in a portfolio. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • demonstrate workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – demonstrate effective human relations techniques in the workplace – practise safety in the workplace – demonstrate acceptable verbal and nonverbal communication skills – practise personal and public hygiene procedures – demonstrate entry-level competency in tools and equipment usage – use supplies correctly – follow good storage practices – demonstrate pride in their work performance – demonstrate a willingness to work – demonstrate respect for others – follow accepted principles and procedures – recognize opportunities for further education/training.

General Outcomes	Specific Outcomes
<p>Students will demonstrate entry-level standards of safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify and explain the use of safety devices within the workplace • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate a prework and postwork hazard assessment • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • model safety consciousness by selecting and wearing personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • recognize the health and safety hazards associated with forestry procedures; e.g., <ul style="list-style-type: none"> – hand tool safety – power tools; e.g., chain saw – small motorized vehicles; e.g., ATVs, snowmobiles – heavy duty equipment operation.
<p>Students will demonstrate entry-level procedures for the measuring and surveying of potential land samples.</p>	<p>Data Interpretation and Evaluation</p> <p>Photograph Interpretation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the procedures for reading and interpreting aerial photographs • evaluate photographs to identify the species to be harvested • evaluate the species to be harvested • identify, from an aerial photograph, the potential number of trees to be harvested. <p>Satellite and Global Positioning System (GPS)</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify satellite and GPS applications within the forestry industry.

General Outcomes

Specific Outcomes

Students will identify entry-level forest-management policies and procedures.

Timber Cruising

Students will:

- identify preharvest survey procedures; e.g.,
 - choose a sample location, using either the quadrant or the line transect method
 - identify the number and species of trees in the sample location
 - determine the volume of each tree within the sample area
 - compile the sampled data as required to estimate fibre volume
 - create a grid of the sample location
- demonstrate hands-on measurement and identification of plant species
- demonstrate survey procedures, using data-interpretation techniques.

Regeneration Survey

Students will:

- recognize what existing species were identified in a timber cruise
- demonstrate tree-planting methodology; e.g.,
 - evaluate cut land to determine what species would best grow there
 - evaluate new growth.

Forest Management

Forest Fire Trends

Students will:

- review fire history maps and look for short-term and long-term fire patterns
- compare the total annual area affected by forest fires to the amount of area harvested annually
- explain the idea of succession as it pertains to forest ecosystems affected by forest fires.

Training and Employment

Students will:

- identify entry-level training and employment opportunities
- identify working conditions
- identify occupational and employment outlooks.

Characteristics

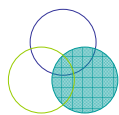
Students will:

- identify the characteristics of ground fires, surface fires and crown fires
- evaluate the results of fires on forests
- identify methods of combatting forest fires.

General Outcomes	Specific Outcomes
<p>Students will identify entry-level duties in the forestry industry.</p>	<p>Conservation officers</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the role and responsibilities of forest rangers; e.g., describe forest and community protection • describe the function of ranger stations.
	<p>Forest Ecology</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • define forest succession • list wildlife habitat requirements • list the major interrelationships among various animals/humans in a given ecosystem • recognize the value of controlled burning to regenerate the natural growth process.
	<p>Forestry Field Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the duties of a crew worker • identify the duties of an equipment operator; e.g., licence classification, hydraulics and heavy equipment • identify bush-survival and woodsmanship techniques; e.g., using a compass • demonstrate the ability to plant seedlings • identify the safe use of hand and power tools and motorized equipment; e.g., <ul style="list-style-type: none"> – snowmobiles – all-terrain vehicles (ATVs) – four-wheel drive vehicles • identify personal emergency preparedness procedures.
	<p>Camp Life</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify what it is like to live in a work camp • identify camp rules and roles • identify unwritten rules of camp conduct • identify communication protocols; e.g., use of CB equipment, communication etiquette • identify camp hazard assessments and hazard controls.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read, view and interpret occupation-related materials for a specific purpose; e.g.,<ul style="list-style-type: none">– read related health and safety documents– read terms of employment documents– follow written instructions specific to an occupational area• create text for a specific purpose that clearly communicates information; e.g.,<ul style="list-style-type: none">– write a résumé– write a job description– submit job application forms• communicate thoughts and ideas and listen to the thoughts and ideas of others to effectively complete a task; e.g.,<ul style="list-style-type: none">– follow oral instructions– give effective oral instructions when necessary.

THINKING

Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.

Problem Solving, Decision Making, Finding Information and Creative Thinking

Students will:

- demonstrate an effective problem-solving model; e.g.,
 - identify the need for a solution to a problem/issue
 - identify why information is needed; e.g., make decisions, inform, persuade
- identify appropriate actions and select and apply information that meets their purposes and needs
- evaluate the results in terms of expected outcomes and assess the impact of information on their purpose and audience.

NUMERACY

General Outcomes	Specific Outcomes
Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.	Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability <i>Students will:</i> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

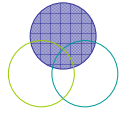
INFORMATION TECHNOLOGY

Students will demonstrate the effective use of information technology to perform daily workplace operations.	Computer Operations and Computer Applications <i>Students will:</i> <ul style="list-style-type: none">• model and assume personal responsibility for the ethical use of information technologies• demonstrate appropriate telephone operations within the workplace; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• use computer operations to assist in the completion of daily workplace operations; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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OIL AND GAS 20-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will apply their abilities and interests toward achieving learning goals. • Students will practise the skills and abilities needed to manage change. • Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities. • Students will understand risks and be accountable for their actions.
Working with Others	<ul style="list-style-type: none"> • Students will practise effective communication skills and strategies in an occupational context. • Students will demonstrate the ability to understand and work within the culture of a group. • Students will plan and make decisions with others.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will orient themselves toward an occupation within an oil and gas career environment. • Students will demonstrate basic safe workplace practices and procedures. • Students will demonstrate the functional mapping skills needed for resource location and navigation. • Students will gain a practical understanding of the oil and gas industry in Alberta. • Students will develop a basic understanding of the processing of oil and natural gas.
Ensuring Quality	<ul style="list-style-type: none"> • Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills.
Thinking	<ul style="list-style-type: none"> • Students will apply creative thinking skills to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will apply mathematical concepts to solve occupational problems.
Information Technology	<ul style="list-style-type: none"> • Students will enhance their performance by using information technology to help complete tasks.

OIL AND GAS 20-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will apply their abilities and interests toward achieving learning goals.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• relate learning preferences and strengths to formal and informal learning opportunities and identify post-secondary opportunities within the related field• assess learning goals and current competencies, identify competencies needing development and identify and prioritize learning goals• create a pathway of senior high school courses to reflect learning goals• identify educational possibilities; e.g., Registered Apprenticeship Program (RAP), Green Certificate, Career and Technology Studies (CTS) and Career Internship.
<p>Students will practise the skills and abilities needed to manage change.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify goals, responsibilities and commitments• assess and reflect on the success of an action plan; e.g.,<ul style="list-style-type: none">– create alternative choices to deal with unexpected change– identify stressors in personal environments that they can and cannot change• identify the need for personal support and create an inventory of available personal and community sources of support.
<p>Students will orient themselves toward an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• assess work preferences and nonpreferences (e.g., indoor, outdoor, shift work), assess life/work options and outline career goals and paths• work in and seek out a variety of roles and responsibilities• measure and celebrate personal contributions to workplace goals; e.g., paid, unpaid or volunteer work• orient themselves to the workplace through community partnerships and assess personal performance in terms of workplace expectations.

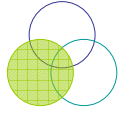
PERSONAL MANAGEMENT

General Outcomes	Specific Outcomes
Students will increase their self-esteem and confidence and enhance their ability to set personal goals and priorities.	Self-development <i>Students will:</i> <ul style="list-style-type: none">• re-evaluate an action plan to develop strengths and talents• use strengths and talents to achieve personal goals• clarify acceptable and appropriate behaviours for specific activities and roles• act ethically in personal, community and workplace contexts and accept the consequences of their actions.
Students will understand risks and be accountable for their actions.	Risk Management <i>Students will:</i> <ul style="list-style-type: none">• follow health and safety procedures; e.g., at home, at school, in the community and in the workplace• identify potential hazards, take corrective action and develop and practise action plans to ensure safety• practise personal emergency responses• assess their comfort level with, and the consequences of, taking risks.

WORKING WITH OTHERS

Students will practise effective communication skills and strategies in an occupational context.	Interpersonal Communication <i>Students will:</i> <ul style="list-style-type: none">• assess the effectiveness of communication strategies used to communicate thoughts and feelings; e.g.,<ul style="list-style-type: none">– listen without interrupting– contribute to be heard– disagree courteously– accept conflicting opinions– use appropriate body language• assess verbal and nonverbal communication strategies• apply social norms to build specific relationships• demonstrate the ability to accept praise and/or criticism.
Students will demonstrate the ability to understand and work within the culture of a group.	Building Community <i>Students will:</i> <ul style="list-style-type: none">• interact with others in a courteous manner• accommodate the beliefs of others in work and personal environments and show respect for differences in beliefs, abilities, etiquette and styles of interaction• identify opportunities for participation in community growth.

General Outcomes	Specific Outcomes
<p>Students will plan and make decisions with others.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • participate effectively as group members; e.g., <ul style="list-style-type: none"> – generate ideas – assess resources – contribute abilities and interests – monitor progress – share responsibility for completion of a task • assume various roles within a group; e.g., leadership • clarify the expected outcomes of teamwork.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

General Outcomes	Specific Outcomes
<p>Students will orient themselves toward an occupation within an oil and gas career environment.</p>	<p>Career Awareness</p> <p>Orientation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify entry-level competencies • identify post-secondary opportunities • recognize entrepreneurial opportunities within the industry • match their personal interests to their job search; e.g., <ul style="list-style-type: none"> – identify sources of support for investigating and finding work – describe entry-level requirements – recognize potential career ladders • identify local opportunities within a career field; e.g., <ul style="list-style-type: none"> – identify local oil and gas products – identify local oil and gas production and processing occupations • research employment information; e.g., duties, working conditions, personal characteristics, education, salary • define oil and gas. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • develop workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – use safe and sanitary practices – demonstrate pride in themselves – demonstrate pride in their work performance – show respect for others – respect the property of others.

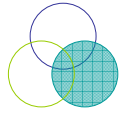
General Outcomes	Specific Outcomes
<p>Students will demonstrate basic safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify safety device locations and procedures within the workplace environment • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • select and wear personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • handle and properly dispose of environmentally hazardous materials • recognize health and safety hazards associated with oil recovery procedures; e.g., <ul style="list-style-type: none"> – hand and tool safety – electricity – small motorized vehicles; e.g., ATVs – heavy duty equipment operation • recognize the safety regulations of petroleum-based industries.
<p>Students will demonstrate the functional mapping skills needed for resource location and navigation.</p>	<p>Topographical Mapping</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify locations, using various map types; e.g., <ul style="list-style-type: none"> – topographical or contour – base – soil type – geological – forest stands or types – road • use technology to identify locations and find directions; e.g., global positioning system (GPS), computer software • use satellite imagery and aerial photographs to locate specific oil and gas clusters • apply basic compass skills to establish direction; e.g., orient a map, establish and follow a bearing.

General Outcomes	Specific Outcomes
<p>Students will gain a practical understanding of the oil and gas industry in Alberta.</p>	<p>Resource Management</p> <p>Exploration</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify oil- and gas-producing areas in Alberta; e.g., well location identification system • describe petroleum-bearing formations in oil- and gas-producing areas in Alberta; e.g., demonstrate familiarity with the various types of oil traps • differentiate between oil and gas • identify the tools and equipment used in locating oil and gas • identify career opportunities within the area of energy resource exploration. <p>Extraction</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify the methods used to extract energy resources from the ground; e.g., drilling, mining • identify tools and equipment used in energy resource extraction • describe site preparation; e.g., <ul style="list-style-type: none"> – scrapers – bulldozers – draglines – drilling, augers, conveyor belts – hand tools and safety equipment – seismic tools – wireline/down hole tools • describe the standard operations of a typical producing well (both oil and gas); e.g., <ul style="list-style-type: none"> – purpose of drilling – method of drilling – types of recovery methods; e.g., free-flowing wells and wells that require pumps and pump jacks • identify career opportunities within the area of oil and gas extraction.

General Outcomes	Specific Outcomes
<p>Students will develop a basic understanding of the processing of oil and natural gas.</p>	<p>Processing</p> <p>Transmission</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify oil and gas transportation systems, from the lease (well site) to the processing plant • describe the layout of a pipeline system that is used to transport conventional oil or gas; e.g., identify the two Canadian pipeline systems (crude oil and natural gas), their sources and their destinations • explain the mechanics of the movement of oil and gas through pipelines; e.g., the function of pump jacks and compressor stations • describe different types of field storage facilities • describe well site and satellite facilities uses and processes; e.g., <ul style="list-style-type: none"> – separation – dehydration – heating – measurement – computer systems. <p>Refining</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • explain the crude oil-refining process • explain the gas-refining process • identify what end products are created from the refining process; e.g., fuels and petrochemicals.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will continue to develop an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will demonstrate effective listening, speaking, reading and writing skills.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read, view and interpret occupation-related materials; e.g.,<ul style="list-style-type: none">– use related occupational terms– identify occupation-related literature– interpret and follow written instructions• select and create a text format to suit a purpose and audience, e.g., forms, letters, reports, memos, résumés, and:<ul style="list-style-type: none">– describe uses of writing skills in related occupations– write a letter of inquiry– write a letter of thanks– complete job applications• listen and present information in a clear, concise manner; e.g.,<ul style="list-style-type: none">– listen attentively to organize and classify information and ideas– organize main ideas and key messages with clarity.

THINKING

Students will apply creative thinking skills to solve problems.

Problem Solving, Decision Making and Creative Thinking

Students will:

- apply a problem-solving model to identify the problem/issue
- identify appropriate actions and develop several alternatives for each promising idea
- evaluate the results, in terms of expected outcomes related to the initial problem, and evaluate personal satisfaction with the outcome of the idea; e.g., product/process.

NUMERACY

General Outcomes	Specific Outcomes
<p>Students will apply mathematical concepts to solve occupational problems.</p>	<p>Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion to solve problems in a meaningful context• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

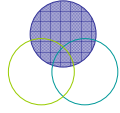
INFORMATION TECHNOLOGY

<p>Students will enhance their performance by using information technology to help complete tasks.</p>	<p>Computer Operations and Computer Applications</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate appropriate language and etiquette when using information technology• demonstrate appropriate telephone operations; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• demonstrate basic computer operations to complete a task; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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OIL AND GAS 30-4 GENERAL OUTCOMES

Employability Competencies	Students will develop these competencies throughout the learning process and demonstrate them in daily life and the workplace.
Managing Transitions	<ul style="list-style-type: none"> • Students will consistently demonstrate personal discovery and continuous learning. • Students will manage change effectively to support their goals. • Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.
Personal Management	<ul style="list-style-type: none"> • Students will exhibit self-esteem and confidence through the achievement of personal goals. • Students will manage risks to achieve both personal and workplace goals.
Working with Others	<ul style="list-style-type: none"> • Students will model effective communication skills and strategies in the home, school, community and workplace. • Students will promote equity in work and community endeavours. • Students will demonstrate the ability to complete tasks in a team environment.
Occupational Competencies	Students will develop and demonstrate the following competencies to succeed in a specific occupation or career.
Achieving Results	<ul style="list-style-type: none"> • Students will prepare for entry-level employment within an oil and gas career environment. • Students will demonstrate entry-level standards of safe workplace practices and procedures. • Students will demonstrate entry-level competencies in practical oil and gas industry skills. • Students will investigate the environmental effects of oil and gas exploration, drilling, extraction, transportation and processing. • Students will investigate possible entry-level positions within the oil and gas industry.
Ensuring Quality	<ul style="list-style-type: none"> • Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.
Academic Competencies	Students will continue to develop these minimum academic competencies that provide a foundation for further learning.
Communication	<ul style="list-style-type: none"> • Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.
Thinking	<ul style="list-style-type: none"> • Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.
Numeracy	<ul style="list-style-type: none"> • Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.
Information Technology	<ul style="list-style-type: none"> • Students will demonstrate the effective use of information technology to perform daily workplace operations.

OIL AND GAS 30-4



EMPLOYABILITY COMPETENCIES: These competencies are developed throughout the learning process and are demonstrated in daily life and the workplace. Students will develop and demonstrate these competencies through individual effort and interpersonal interaction while completing a variety of projects/activities.

MANAGING TRANSITIONS

General Outcomes	Specific Outcomes
<p>Students will consistently demonstrate personal discovery and continuous learning.</p>	<p>Lifelong Learning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify learning opportunities related to learning goals, commitments and resources; e.g., <ul style="list-style-type: none"> – identify opportunities for further education/training – locate needed financial support systems – locate needed personal support systems • practise what has been learned to build competence and confidence and evaluate the application of competencies to learning goals • create a plan that demonstrates continuous learning; e.g., <ul style="list-style-type: none"> – analyze requirements for graduation and for further education/training – modify a learning plan to reflect requirements and opportunities.
<p>Students will manage change effectively to support their goals.</p>	<p>Adapting to Change</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • prioritize and assign resources to meet commitments and goals • prioritize commitments and goals to achieve a balanced lifestyle • redefine an action plan as situations change; e.g., <ul style="list-style-type: none"> – use adaptive strategies – redefine personal goals – select personal coping mechanisms • access available and appropriate sources of support • identify opportunities for improvement and innovation; e.g., entrepreneurship.

General Outcomes	Specific Outcomes
<p>Students will prepare themselves for entry-level employment in an occupation that reflects their personal aptitudes and interests.</p>	<p>Career Development</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • analyze elements of job satisfaction; e.g., recognition, environment, pay, benefits, prestige • build personal career paths and networks • analyze how work contributes to societal and economic needs and a sense of responsibility • prepare for employment through community partnership activities and organize and complete specific job tasks effectively and efficiently.

PERSONAL MANAGEMENT

Students will exhibit self-esteem and confidence through the achievement of personal goals.

Self-development

Students will:

- continue to create a long-term self-development plan in which they consider accomplishments and redefine self-development goals
- demonstrate entry-level self-presentation appropriate to the activity and role
- maintain a high standard of personal ethics when interacting with others.

Students will manage risks to achieve both personal and workplace goals.

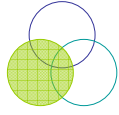
Risk Management

Students will:

- maintain health and safety procedures; e.g., at home, at school, in the community and in the workplace
- monitor success in reducing the impact of hazards on themselves and others
- demonstrate concern for the safety of others by exhibiting appropriate behaviour in the workplace
- work with others to respond to emergencies
- take planned risks to contribute to personal growth.

WORKING WITH OTHERS

General Outcomes	Specific Outcomes
<p>Students will model effective communication skills and strategies in the home, school, community and workplace.</p>	<p>Interpersonal Communication</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• communicate thoughts and feelings appropriately; e.g.,<ul style="list-style-type: none">– listen without interrupting– contribute to be heard– disagree courteously– accept conflicting opinions– use appropriate body language• maintain a balance between speaking, listening and responding• work together to achieve goals• demonstrate the ability to deal constructively with conflict.
<p>Students will promote equity in work and community endeavours.</p>	<p>Building Community</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• demonstrate and model courteous behaviour in daily interactions• demonstrate respect for others and a shared understanding of diverse beliefs, etiquette and styles of interaction• assess their personal contribution to community growth.
<p>Students will demonstrate the ability to complete tasks in a team environment.</p>	<p>Teamwork</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• assess the effectiveness of group and personal contributions; e.g.,<ul style="list-style-type: none">– generate ideas– assess resources– contribute abilities and interests– monitor progress– share responsibility for completion of a task• expand their abilities to contribute to team goals.



OCCUPATIONAL COMPETENCIES: Students will develop and demonstrate the following competencies to succeed in a specific occupation or career. They will achieve results through a variety of projects/activities as appropriate to enhance their knowledge and skills. Students will ensure the quality of their work through effective task management and will highlight their achievements in a career-based portfolio.

ACHIEVING RESULTS

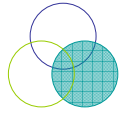
General Outcomes	Specific Outcomes
<p>Students will prepare for entry-level employment within an oil and gas career environment.</p>	<p>Career Awareness</p> <p>Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • assess entry-level competencies • recognize opportunities for further education/training • select post-secondary opportunities • identify local entrepreneurs • establish contacts with local businesses/industries • present marketable skills and strengths; e.g., <ul style="list-style-type: none"> – write a letter of application – prepare a résumé – complete application forms – identify contacts and references – collect evidence of competencies in a portfolio. <p>Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • demonstrate workplace protocols, procedures and standards of conduct; e.g., <ul style="list-style-type: none"> – demonstrate appropriate work habits – demonstrate effective human relations techniques in the workplace – practise safety in the workplace – demonstrate acceptable verbal and nonverbal communication skills – practise personal and public hygiene procedures – demonstrate entry-level competency in tools and equipment usage – use supplies correctly – follow good storage practices – demonstrate pride in their work performance – demonstrate a willingness to work – demonstrate respect for others – follow accepted principles and procedures – recognize opportunities for further education/training.

General Outcomes	Specific Outcomes
<p>Students will demonstrate entry-level standards of safe workplace practices and procedures.</p>	<p>Workplace Health and Safety</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify and explain the use of safety devices within the workplace • demonstrate knowledge of, and the ability to access information about, Occupational Health and Safety (OHS) and the Workers' Compensation Board (WCB) • demonstrate a prework and postwork hazard assessment • demonstrate knowledge of, and adherence to, safety rules that are specific to available tools, equipment and materials • demonstrate knowledge of health hazards associated with the use of chemicals and materials and retrieve information on Material Safety Data Sheets (MSDS), using appropriate print and Internet resources • model safety consciousness by selecting and wearing personal protective equipment (PPE) appropriate to the specific task • demonstrate knowledge of environmental issues relating to the procedures for handling hazardous waste • demonstrate an understanding of the Workplace Hazardous Materials Information System (WHMIS) as it relates to the field of study and identify WHMIS symbols, classes and labelling requirements • recognize the health and safety hazards associated with oil and gas procedures; e.g., <ul style="list-style-type: none"> – hand tool safety – power tools; e.g., chain saw – small motorized vehicles; e.g., ATVs, snowmobiles – heavy duty equipment; e.g., generators, compressors.
<p>Students will demonstrate entry-level competencies in practical oil and gas industry skills.</p>	<p>Data Interpretation and Measurement</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • demonstrate practical skills when using the reading and measuring tools commonly used in the oil and gas industry; e.g., <ul style="list-style-type: none"> – demonstrate processes for reading gauges, meters – demonstrate conversion methods • describe the processes used for tracking the production and distribution of a product • identify the use of computer systems in the production process.

General Outcomes	Specific Outcomes
<p>Students will investigate the environmental effects of oil and gas exploration, drilling, extraction, transportation and processing.</p>	<p>Resource Management</p> <p>Environmental Safety Hazards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • understand applicable environmental legislation • identify waste management programs and controls; e.g., identify the consequences that result when these programs fail • identify environmental hazards; e.g., <ul style="list-style-type: none"> – toxic emissions and disposal – noise pollution – land/wildlife (reclamation) • identify industry regulations that address the transportation of dangerous goods • identify environmental protection procedures; e.g., safety procedures, blow-out prevention. <p>Economic Perspectives</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • discuss the impacts of local petroleum-based industries on the community, families and individuals; e.g., economic (social, industrial), environmental.
<p>Students will investigate possible entry-level positions within the oil and gas industry.</p>	<p>Oil and Gas Field Preparation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none"> • identify specific site safety issues, regulations and procedures • identify equipment and machinery used in oil and gas exploration, drilling, extraction, transportation and processing; e.g., <ul style="list-style-type: none"> – drill rigs – well heads/blow-out preventers – pump jacks – separators – pipelines • identify positions and related duties in oil and gas: <ul style="list-style-type: none"> – exploration; e.g., jug hand, driller, site preparation – drilling; e.g., tool push, floor hand, derrick hand – extraction; e.g., operators, wire line crew – transportation; e.g., flag person, equipment operators (licence classification, hydraulics and heavy equipment) – processing; e.g., maintenance worker – clean-up; e.g., site reclamation.

ENSURING QUALITY

General Outcomes	Specific Outcomes
<p>Students will demonstrate an understanding of the value of effective task management processes by applying knowledge and skills to simulated and actual work situations.</p>	<p>Task Management</p> <p>Outcomes</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read and/or listen to instructions• ask questions to clarify expected outcomes, procedures and time lines. <p>Decision Making</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the parameters of the task• generate and review alternative ideas and their consequences• make a decision or select an idea. <p>Planning</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify the steps involved in managing a project• prepare a sample project plan, including budget and time line• identify available tools, equipment and materials. <p>Performance Standards</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify expected standards for a product or service• work to agreed quality standards and specifications• select and use appropriate tools and technology for a task or project. <p>Evaluation</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• identify opportunities for improving quality• establish expectations and measures for improvements• create evidence to support an understanding of task management and skill development for inclusion in a personal portfolio.



ACADEMIC COMPETENCIES: These are the minimum academic competencies that provide a foundation for further learning. The following outcomes are provided as a reminder to address these academic competencies within the occupational context and to reinforce cross-curricular connections.

COMMUNICATION

General Outcomes	Specific Outcomes
<p>Students will demonstrate effective listening, speaking, reading and writing skills to prepare for employment.</p>	<p>Listening, Speaking, Reading and Writing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">• read, view and interpret occupation-related materials for a specific purpose; e.g.,<ul style="list-style-type: none">– read related health and safety documents– read terms of employment documents– follow written instructions specific to an occupational area• create text for a specific purpose that clearly communicates information; e.g.,<ul style="list-style-type: none">– write a résumé– write a job description– submit job application forms• communicate thoughts and ideas and listen to the thoughts and ideas of others to effectively complete a task; e.g.,<ul style="list-style-type: none">– follow oral instructions– give effective oral instructions when necessary.

THINKING

Students will research information, use creative thinking skills and use effective problem-solving strategies to solve problems.

Problem Solving, Decision Making, Finding Information and Creative Thinking

Students will:

- demonstrate an effective problem-solving model; e.g.,
 - identify the need for a solution to a problem/issue
 - identify why information is needed; e.g., make decisions, inform, persuade
- identify appropriate actions and select and apply information that meets their purposes and needs
- evaluate the results in terms of expected outcomes and assess the impact of information on their purpose and audience.

NUMERACY

General Outcomes	Specific Outcomes
Students will demonstrate mathematical operations to effectively solve problems in a meaningful context.	Basic Operations, Patterns and Relationships, Shape and Space, and Statistics and Probability <i>Students will:</i> <ul style="list-style-type: none">• apply arithmetic operations, e.g., addition, subtraction, multiplication or division, to whole numbers and decimals and use number operations when creating and solving money problems• use calculators or computers to perform calculations involving large and small numbers when solving problems• apply concepts of rate, ratio, percentage and proportion• demonstrate a number sense for whole numbers 0 to 100 000 and explore proper fractions and decimals• estimate, measure and compare, using decimal numbers and standard units of measure, to solve problems in everyday contexts; e.g., mass, length, volume, time, perimeter, surface area• use metric and imperial units of measure.

INFORMATION TECHNOLOGY

Students will demonstrate the effective use of information technology to perform daily workplace operations.	Computer Operations and Computer Applications <i>Students will:</i> <ul style="list-style-type: none">• model and assume personal responsibility for the ethical use of information technologies• demonstrate appropriate telephone operations within the workplace; e.g., answer telephone calls appropriately, locate numbers and make telephone calls• use computer operations to assist in the completion of daily workplace operations; e.g.,<ul style="list-style-type: none">– use basic keyboarding skills– store, organize and retrieve information correctly– locate and select information and ideas, using appropriate technology and information systems; e.g., Internet– access, send and retrieve e-mail and attachments• demonstrate procedures for connecting and using audio, video and digital equipment• demonstrate procedures for sending and receiving faxes and setting up a fax machine• demonstrate procedures for copying and printing documents.
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