KNOWLEDGE AND EMPLOYABILITY HORTICULTURE GRADES 8 AND 9

Knowledge and Employability junior high school occupational programs of study focus on the exploration stage of student understanding and progress. The junior high school occupational component consists of nine strands, each with specific units. Learning begins at the students' level of understanding and ability. progress through the levels in each area of study and unit, as appropriate, as they demonstrate increased proficiency and capabilities. Areas of study and related units may be combined to form a course or courses during each year of the students' involvement in the Knowledge and Employability occupational component. The interests and abilities of students, and school and community resources, determine the selected units and areas of study. The provision of activities and practical applications assist students in everyday tasks and in gaining entry-level employability skills.

Strand: Horticulture

Unit A: Soil Preparation, Plants and Planting

Unit B: Turf/Grasses Unit C: Landscaping

Knowledge and Employability junior high occupational courses are designed to develop academic and basic/employability competencies through an applied and meaningful context.

Academic competencies are to be enhanced through each area of study and include:

- literacy
- numeracy
- technology.

Basic/employability competencies are to be developed within each area of study and include:

- work skills
- organizational skills
- workplace performance
- positive workplace attitudes.

Occupational competencies are the combination of knowledge, skills and work effort needed to perform a task. These competencies relate to the unit of study and include:

- career awareness
- applied academic skills
- safety
- knowledge (concepts and skills)
- workplace performance.

The Knowledge and Employability occupational component emphasizes the interrelationships among, and the connections to, other school subjects, the home, the workplace and the community. Integrated thematic units, projects and community partnerships link other school subjects and career development within the occupational component courses and units of study to promote cross-curricular, workplace and community connections. Teachers are encouraged pursue various opportunities through community partnerships; e.g., the use of speakers, mentors and business sites for work-study or job shadowing.

Students develop and expand their career portfolios as they progress through Knowledge and Employability courses. Career portfolios include evidence that demonstrates student competencies and abilities; e.g., workplace assessments, photographs of products made in occupational component units and acknowledgement/recognition from community members.

UNIT A: SOIL PREPARATION, PLANTS AND PLANTING

Students will complete a variety of projects/activities to develop competencies in soil preparation and the planting of a variety of vegetation. They will add samples, photographs and other evidence of their progress to their career portfolios.

General Outcomes

Students will:

- develop academic competencies to enhance knowledge and skills when working with soil, plants and the planting process
- develop basic/employability competencies through individual effort and interpersonal interaction while completing a variety of projects/activities
- develop occupational competencies through the combination of knowledge, skills and work effort needed to perform tasks related to soil, plants and the planting process.

ACADEMIC COMPETENCIES

| General Outcomes | Specific Outcomes | |
|---|--|--|
| Students will reinforce the development of literacy and numeracy skills related to occupational contexts. | Students will: demonstrate effective oral and written communication skills demonstrate an understanding of basic occupational terminology use appropriate nonverbal communication skills listen effectively read and interpret appropriate directions, ingredients, graphs, charts, manuals and/or bulletins read numbers up to four digits add, subtract, multiply and divide, using fractions, decimals and whole numbers, and apply basic computations to complete a task identify metric and imperial units of measurement count and make change for money up to \$100 estimate the supplies, materials and equipment required for a task enhance literacy and numeracy skills through basic computer operations. | |

BASIC/EMPLOYABILITY COMPETENCIES

| General Outcomes | Specific Outcomes | | |
|---|--|--|--|
| - General Outcomes | Specific Outcomes | | |
| Students will develop work skills related to the completion of general and specific work tasks. | Students will: follow safety procedures when working with tools, equipment and materials work safely in school laboratories, shops and classrooms, and at off-campus work sites, with a variety of tools, equipment and materials use correct measurement and layout procedures in the planning and completion of a task demonstrate proficiency in the handling of tools, equipment and materials in a variety of activities use machinery safely and proficiently to accomplish a specific task demonstrate proper maintenance procedures for tools, equipment and machinery demonstrate appropriate clean-up and sanitation of the work environment. | | |
| Students will develop organizational skills to enhance their ability to complete work tasks. | Students will: plan and prepare effectively to ensure the completion of tasks or activities demonstrate critical thinking before making decisions demonstrate creative thinking to complete a task make decisions regarding selected aspects of a project or task solve problems associated with the completion of a task demonstrate the ability to design and draw plans for a project make accurate estimations and calculations as necessary for the completion of tasks. | | |
| Students will demonstrate workplace performance by using knowledge to apply work and organizational skills. | Students will: follow instructions to complete all tasks clarify task requirements to ensure completion demonstrate attention to detail to accurately complete tasks work independently and as members of a team use initiative wisely when completing tasks and working with others meet the standards set for task completion demonstrate dependability by arriving on time and completing tasks on schedule minimize waste when using various materials to complete a task demonstrate a willingness to learn. | | |
| Students will develop positive workplace attitudes to enhance their knowledge and skills. | Students will: demonstrate safety consciousness in the work environment demonstrate self-discipline demonstrate integrity while working with others demonstrate adaptability while working on a task demonstrate perseverance to ensure task completion demonstrate cooperation, selflessness and concern for others while working as members of a team demonstrate responsibility by meeting deadlines and completing tasks | | |

| General Outcomes | Specific Outcomes | |
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| | demonstrate enthusiasm and a willingness to try when attempting a task demonstrate their commitment to improvement by accepting advice and constructive criticism demonstrate a regard for the environment by following proper procedures for the clean-up and disposal of materials. | |

OCCUPATIONAL COMPETENCIES

| General Outcomes | Specific Outcomes | |
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| | Level 1 | Level 2 |
| Students will understand the employability characteristics of a successful worker. | Career Awareness Students will: • identify various occupations in the horticulture industry; e.g., landscaper, florist, greenhouse worker • investigate local horticultural job opportunities. | Students will: • select a career in the field of horticulture, e.g., investigate jobs in floristry, landscaping, gardening and greenhouse operation, and research: - types of jobs - job locations - training required - salary expectations - job responsibilities • identify available senior high school courses related to horticulture. |
| Students will relate academic skills to occupational requirements. | Applied Academic Skills Students will: measure amounts of plant food, soil mixtures and fertilizers calculate the amount of concentrate needed to prepare a plant food solution, according to a proportion given on a label. | Students will: draw and label the anatomy of a flower draw and describe the life cycle of a plant; e.g., annuals, perennials, biennials estimate the ratio of soil modifiers needed when preparing soils for seedlings and plants. |
| Students will understand the function and safe application of tools, equipment and materials. | Safety Students will: follow safe procedures in the use of tools, equipment and materials in soil preparation work within a shop environment identify Hazardous Household Product Symbols (HHPS) and Workplace Hazardous Materials Information System (WHMIS) symbols on fertilizer packages. | Students will: follow safe procedures in the use of tools, equipment and materials for planting, transplanting and general maintenance identify HHPS and WHMIS symbols on fertilizer packages. |

| General Outcomes | Specific Outcomes | |
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| | Level 1 | Level 2 |
| Students will understand concepts and skills. | Knowledge (Concepts and Skills) Students will: identify soil components to determine their effects on plant growth recognize various soil types describe the effects of tilling the soil explain soil pH factors for soil preparation and use differentiate among many sources of soil nutrients; e.g., fertilizer, biosolids explain composting procedures discuss the benefits and uses of composting explain the need for light, water and nutrients for plant growth; e.g., amounts required. | |
| Students will apply concepts and skills in practical situations. | Workplace Performance Students will: show care and attention when working with plants use and maintain gardening tools and equipment correctly and safely; e.g., shovel, spading fork, rototiller determine which tools will be most effective when working on different kinds of projects determine how much water plants need and when the watering should take place. | Students will: develop customer service skills; e.g., plant sales demonstrate the ability to work courteously and effectively with the public, direct the work of others and provide information to customers; e.g., plant sales recognize various plant varieties and species native to Alberta demonstrate knowledge of planting and transplanting demonstrate knowledge of plant maintenance practise proper planting procedures for a variety of plants or flowers |

| General Outcomes | Specific Outcomes | |
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| | Level 1 | Level 2 |
| | | perform seasonal plant and tree maintenance develop a plan to maintain and care for a variety of plants assess plant ailments and try different corrective actions. |

UNIT B: TURF/GRASSES

Students will complete a variety of projects/activities to develop competencies in planting, preparing and maintaining turf/grasses. They will add samples, photographs and other evidence of their progress to their career portfolios.

General Outcomes

Students will:

- develop academic competencies to enhance knowledge and skills when working with turf and grasses
- develop basic/employability competencies through individual effort and interpersonal interaction while completing a variety of projects/activities
- develop occupational competencies through the combination of knowledge, skills and work effort needed to grow and maintain turf/grasses.

ACADEMIC COMPETENCIES

| General Outcomes | Specific Outcomes | |
|---|--|--|
| Students will reinforce the development of literacy and numeracy skills related to occupational contexts. | Students will: demonstrate effective oral and written communication skills demonstrate an understanding of basic occupational terminology use appropriate nonverbal communication skills listen effectively read and interpret appropriate directions, ingredients, graphs, charts, manuals and/or bulletins read numbers up to four digits add, subtract, multiply and divide, using fractions, decimals and whole numbers, and apply basic computations to complete a task identify metric and imperial units of measurement count and make change for money up to \$100 estimate the supplies, materials and equipment required for a task enhance literacy and numeracy skills through basic computer operations. | |

BASIC/EMPLOYABILITY COMPETENCIES

| General Outcomes | Specific Outcomes |
|---|--|
| Students will develop work skills related to the completion of general and specific work tasks. | Students will: follow safety procedures when working with tools, equipment and materials work safely in school laboratories, shops and classrooms, and at off-campus work sites, with a variety of tools, equipment and materials use correct measurement and layout procedures in the planning and completion of a task demonstrate proficiency in the handling of tools, equipment and materials in a variety of activities use machinery safely and proficiently to accomplish a specific task demonstrate proper maintenance procedures for tools, equipment and machinery demonstrate appropriate clean-up and sanitation of the work environment. |
| Students will develop organizational skills to enhance their ability to complete work tasks. | Students will: plan and prepare effectively to ensure the completion of tasks or activities demonstrate critical thinking before making decisions demonstrate creative thinking to complete a task make decisions regarding selected aspects of a project or task solve problems associated with the completion of a task demonstrate the ability to design and draw plans for a project make accurate estimations and calculations as necessary for the completion of tasks. |
| Students will demonstrate workplace performance by using knowledge to apply work and organizational skills. | Students will: follow instructions to complete all tasks clarify task requirements to ensure completion demonstrate attention to detail to accurately complete tasks work independently and as members of a team use initiative wisely when completing tasks and working with others meet the standards set for task completion demonstrate dependability by arriving on time and completing tasks on schedule minimize waste when using various materials to complete a task demonstrate a willingness to learn. |
| Students will develop positive workplace attitudes to enhance their knowledge and skills. | Students will: demonstrate safety consciousness in the work environment demonstrate self-discipline demonstrate integrity while working with others demonstrate adaptability while working on a task demonstrate perseverance to ensure task completion demonstrate cooperation, selflessness and concern for others while working as members of a team |

| General Outcomes | Specific Outcomes | | |
|------------------|---|--|--|
| | demonstrate responsibility by meeting deadlines and completing tasks demonstrate enthusiasm and a willingness to try when attempting a task demonstrate their commitment to improvement by accepting advice and constructive criticism demonstrate a regard for the environment by following proper procedures for the clean-up and disposal of materials. | | |

OCCUPATIONAL COMPETENCIES

| General Outcomes | Specific Outcomes | |
|--|--|---|
| | Level 1 | Level 2 |
| Students will understand the employability characteristics of a successful worker. | Career Awareness Students will: • identify various occupations in the lawn care industry • investigate local employment opportunities in lawn care • identify the personal knowledge, skills and attitudes required in lawn care occupations. | Students will: identify the knowledge, skills and attitudes needed to be successful in a lawn care environment; e.g., good customer service skills, the willingness to work long hours during the busy season, the ability to work independently or as part of a team, the ability to adapt to new situations and solve problems as they arise, a willingness to work with their hands investigate careers in occupations involving turf care and maintenance; e.g., types of jobs job locations training required salary expectations. |
| Students will relate academic skills to occupational requirements. | Applied Academic Skills Students will: read and interpret seeding and fertilizing information from manuals and packaging calculate the sod requirements for a given area use metric and imperial measurements. | Students will: estimate the amount of fertilizer required for lawns of various dimensions calculate the appropriate amounts of seed or sod for a given area locate and interpret information regarding lawn care and maintenance, using a computer. |

| General Outcomes | Specific Outcomes | |
|--|---|--|
| Students will understand the | Level 1 Safety | Level 2 |
| function and safe application of tools, equipment and materials. | Students will: identify the types and safe use of tools and machinery for lawn care identify possible safety hazards in turf care wear appropriate clothing (personal protective equipment/PPE) when cutting and when using turf-care materials identify HHPS and WHMIS symbols on relevant chemicals. | dress and wear appropriate clothing and protective equipment (PPE) when working outside and when using lawn care equipment and materials promote safe practices and safety consciousness when working in a group and when using lawn care equipment identify and remove possible safety hazards identify HHPS and WHMIS symbols on relevant chemicals. |
| Students will understand concepts and skills. | Knowledge (Concepts and Skills) Students will: identify various tools and machinery used in lawn care identify the different places and purposes where turf/grass is used discuss proper lawn maintenance; e.g., watering, mowing, fertilizing discuss sod-laying instructions and procedures discuss the advantages and disadvantages of seeding and laying sod. | Students will: identify common turf/grass species in different parts of Alberta understand watering schedules for, and the sunlight demands of, various species of grass understand seeding instructions and procedures recognize the result of different mowing practices identify the effects of fertilizing too much or too little discuss the components of fertilizer, e.g., nitrogen (N), phosphorus (P) and potassium (K), and discuss when each is appropriate to use describe the maintenance schedules for fertilizing, watering, mowing and winter preparation describe the benefits of seasonal preparations and practices; e.g., raking, power raking, aerating identify composting practices that use the waste materials resulting from lawn care and maintenance. |

| General Outcomes | Specific Outcomes | |
|--|---|---|
| Students will apply concepts and skills in practical situations. | Level 1 Workplace Performance Students will: • perform seasonal turf maintenance; e.g., mowing, weeding • demonstrate the daily care and maintenance of lawn care tools, equipment and machinery • demonstrate proper ground preparation for the laying of sod • demonstrate safety consciousness when dealing with lawn care tools and machinery. | Level 2 Students will: demonstrate knowledge of turf/grass varieties in Alberta prepare soil for seeding and seed a lawn demonstrate proper watering practices demonstrate proper mowing practices; e.g., cutting height, mowing direction and mowing frequency demonstrate a regard for the environment by cleaning up waste materials and discharged plant matter demonstrate composting practices that use the waste materials |
| | | resulting from lawn care and maintenance. |

UNIT C: LANDSCAPING

Students will complete a variety of projects/activities to develop competencies in designing, producing and maintaining a landscaped area. They will add samples, photographs and other evidence of their progress to their career portfolios.

General Outcomes

Students will:

- develop academic competencies to enhance knowledge and skills when working with landscaping equipment and materials
- develop basic/employability competencies through individual effort and interpersonal interaction while completing a variety of projects/activities
- develop occupational competencies through the combination of knowledge, skills and work effort needed to create and maintain a landscape.

ACADEMIC COMPETENCIES

| General Outcomes | Specific Outcomes |
|---|--|
| Students will reinforce the development of literacy and numeracy skills related to occupational contexts. | Students will: demonstrate effective oral and written communication skills demonstrate an understanding of basic occupational terminology use appropriate nonverbal communication skills listen effectively read and interpret appropriate directions, ingredients, graphs, charts, manuals and/or bulletins read numbers up to four digits add, subtract, multiply and divide, using fractions, decimals and whole numbers, and apply basic computations to complete a task identify metric and imperial units of measurement count and make change for money up to \$100 estimate the supplies, materials and equipment required for a task enhance literacy and numeracy skills through basic computer operations. |

BASIC/EMPLOYABILITY COMPETENCIES

| General Outcomes | Specific Outcomes |
|---|--|
| Students will develop work skills related to the completion of general and specific work tasks. | Students will: follow safety procedures when working with tools, equipment and materials work safely in school laboratories, shops and classrooms, and at off-campus work sites, with a variety of tools, equipment and materials use correct measurement and layout procedures in the planning and completion of a task demonstrate proficiency in the handling of tools, equipment and materials in a variety of activities use machinery safely and proficiently to accomplish a specific task demonstrate proper maintenance procedures for tools, equipment and machinery demonstrate appropriate clean-up and sanitation of the work environment. |
| Students will develop organizational skills to enhance their ability to complete work tasks. | Students will: plan and prepare effectively to ensure the completion of tasks or activities demonstrate critical thinking before making decisions demonstrate creative thinking to complete a task make decisions regarding selected aspects of a project or task solve problems associated with the completion of a task demonstrate the ability to design and draw plans for a project make accurate estimations and calculations as necessary for the completion of tasks. |
| Students will demonstrate workplace performance by using knowledge to apply work and organizational skills. | Students will: follow instructions to complete all tasks clarify task requirements to ensure completion demonstrate attention to detail to accurately complete tasks work independently and as members of a team use initiative wisely when completing tasks and working with others meet the standards set for task completion demonstrate dependability by arriving on time and completing tasks on schedule minimize waste when using various materials to complete a task demonstrate a willingness to learn. |
| Students will develop positive workplace attitudes to enhance their knowledge and skills. | Students will: demonstrate safety consciousness in the work environment demonstrate self-discipline demonstrate integrity while working with others demonstrate adaptability while working on a task demonstrate perseverance to ensure task completion demonstrate cooperation, selflessness and concern for others while working as members of a team |

| General Outcomes | Specific Outcomes | |
|------------------|---|--|
| | demonstrate responsibility by meeting deadlines and completing tasks demonstrate enthusiasm and a willingness to try when attempting a task demonstrate their commitment to improvement by accepting advice and constructive criticism demonstrate a regard for the environment by following proper procedures for the clean-up and disposal of materials. | |

OCCUPATIONAL COMPETENCIES

| General Outcomes | Specific Outcomes | | |
|--|---|--|--|
| | Level 1 | Level 2 | |
| Students will understand the employability characteristics of a successful worker. | Career Awareness Students will: • identify various occupations in the landscaping industry • identify local businesses in the landscaping field • identify the personal knowledge, skills and attitudes required in landscaping occupations. | Students will: investigate the development of natural and created environments investigate a specific job in the landscaping industry; e.g., type of job job location training required salary expectations job responsibilities working conditions identify available senior high school courses related to landscaping or construction. | |
| Students will relate academic skills to occupational requirements. | Applied Academic Skills Students will: use terminology from the landscaping field demonstrate effective oral and written communication skills read and interpret appropriate blueprints and landscape drawings. | Students will: draw and explain the function of a rain barrel create symbols to be used in a landscape design; e.g., triangle represents tree estimate supplies, materials and labour costs plan and design a landscape project use appropriate measurements to scale. | |
| Students will understand the function and safe application of tools, equipment and materials. | Safety Students will: follow safe procedures in the use of tools, equipment and materials identify possible hazards associated with developing a landscape identify HHPS and WHMIS symbols on relevant chemicals. | Students will: identify and remove potential hazards from a landscaping project demonstrate independent, safe and proper use of landscaping equipment and materials promote safety awareness and conscientiousness toward others when working as part of a team identify HHPS and WHMIS symbols on relevant chemicals. | |

| General Outcomes | Specific Outcomes | | |
|--|---|---|--|
| | Level 1 | Level 2 | |
| Students will understand concepts | Knowledge (Concepts and Skills) | | |
| and skills. | Students will: define the term landscape describe the most commonly used plant materials in landscaping identify various watering methods discuss different watering methods and their advantages and disadvantages discuss drainage and wet soil problems; e.g., water trap discuss basic client services involved in landscaping; i.e., application of knowledge, communication skills and safety practices. | identify terminology used within the landscaping field differentiate between a plant and a weed recognize and name common weeds native to Alberta discuss water collection methods; e.g., rain barrels identify ornamental plants to select for inclusion in a landscape design define xeriscaping discuss proper weed control methods; e.g., cultivating, mulching, chemical use. | |
| Students will apply concepts and skills in | Workplace Performance | | |
| practical situations. | Students will: demonstrate good communication skills; e.g., listening and writing skills demonstrate the ability to work independently and in a group demonstrate knowledge of common landscaping plants and materials demonstrate the effective use of landscaping terminology perform general landscaping maintenance; e.g., weed control, pruning, watering demonstrate the safe handling and maintenance of landscaping tools and equipment choose appropriate watering methods; e.g., sprinklers, rain water, soaker hoses. | Students will: show initiative and reliability when planning for and delivering client services follow instructions for the use of fertilizers determine appropriate watering schedules use simple drafting techniques to construct a landscape plan demonstrate entry-level landscape maintenance; e.g., soil preparation, planting and transplanting, trimming and pruning, mowing and watering. | |