

COURSE LGA3405: LANDSCAPE EQUIPMENT

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills related to tools, machinery and hydraulics to safely use landscape equipment and perform various landscaping jobs.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

- 1. perform safety checks on commercial vehicles**
 - 1.1 identify safety equipment required for commercial vehicles used in the landscape gardener trade, including:
 - 1.1.1 guarding and shielding
 - 1.1.2 labels and instructions
 - 1.1.3 operator's zone and controls
 - 1.1.4 stability and overturn protection
 - 1.2 demonstrate the location of selected hazard warning devices, including:
 - 1.2.1 hazard and warning labels
 - 1.2.2 specific hazards and risks of the work site
 - 1.2.3 proper storage of hazardous material
 - 1.2.4 proper storage of equipment
 - 1.3 perform a pre-trip inspection of equipment; e.g., excavator, mower
- 2. demonstrate recommended maintenance practices on machinery**
 - 2.1 describe three-point hitch classes, parts and adjustments, including:
 - 2.1.1 categories 0, 1, 2, 3
 - 2.1.2 lower and upper arms
 - 2.1.3 hitch lifting arms
 - 2.1.4 draft control mechanism
 - 2.2 describe components of power takeoff (PTO) coupler shafts and their speeds, including:
 - 2.2.1 driveshaft
 - 2.2.2 driveshaft rotate speed
 - 2.2.3 pedestal
 - 2.2.4 pedestal connection
 - 2.2.5 U-joint (i.e., universal joint)
 - 2.3 identify machinery protection features, including:
 - 2.3.1 rollover protection system
 - 2.3.2 falling object protection system
 - 2.3.3 front and rear visibility
 - 2.3.4 safety control features

- 2.4 describe belt and chain drive systems, including:
 - 2.4.1 components of the belt system
 - 2.4.2 components of the drive system
 - 2.4.3 advantages of specific systems
 - 2.4.4 disadvantages of specific systems
- 2.5 describe maintenance for belt, chain and PTO drive systems, including:
 - 2.5.1 proper inspection
 - 2.5.2 appropriate fastener types
 - 2.5.3 proper lubrication
 - 2.5.4 normal wear
- 2.6 describe machinery lubrication practices, including:
 - 2.6.1 lube-handling systems
 - 2.6.2 lubricant selection/specification
 - 2.6.3 lubrication requirement for each machine
- 2.7 demonstrate selected machinery maintenance practices; e.g., excavator, mower
- 3. perform basic engine maintenance and operation**
 - 3.1 identify engine components, including:
 - 3.1.1 fuel system
 - 3.1.2 ignition system
 - 3.1.3 electrical system
 - 3.2 identify two- and four-stroke cycle events for gasoline and diesel engines, including:
 - 3.2.1 intake stroke
 - 3.2.2 compression stroke
 - 3.2.3 ignition event
 - 3.2.4 power stroke
 - 3.2.5 exhaust stroke
 - 3.3 explain the function and maintenance of selected systems, including:
 - 3.3.1 lubrication
 - 3.3.2 exhaust
 - 3.3.3 intake
 - 3.3.4 electrical
 - 3.4 interpret maintenance schedules for engines or machines
 - 3.5 identify precautions for cold weather start-up, including:
 - 3.5.1 engine temperature
 - 3.5.2 warming time of machines
 - 3.5.3 warming of hydraulics
 - 3.6 identify procedures for engine shutdown; e.g., order of shutdown operations
- 4. explain hydraulic system operation and basic maintenance practices**
 - 4.1 describe hydraulic fluid principles, including:
 - 4.1.1 temperature
 - 4.1.2 viscosity
 - 4.1.3 flow
 - 4.2 describe the purpose of hydraulic system components and accessories, including:
 - 4.2.1 pressure source
 - 4.2.2 pressure user
 - 4.2.3 fluid
 - 4.2.4 piping system

- 4.3 select appropriate hydraulic fluids for the required application, including:
 - 4.3.1 detergent
 - 4.3.2 no detergent
 - 4.3.3 anti-wear
 - 4.3.4 no anti-wear
- 4.4 describe procedures for locating leaks, including:
 - 4.4.1 pressure identity
 - 4.4.2 excessive noise
 - 4.4.3 excessive heat
 - 4.4.4 incorrect flow
 - 4.4.5 faulty operation
- 4.5 describe daily routine procedures for checking hydraulic systems, including:
 - 4.5.1 using clean practices when adding fluid
 - 4.5.2 checking clean breathers
 - 4.5.3 changing pitted cylinder rods and worn cylinders
 - 4.5.4 changing filter cartridges
 - 4.5.5 purging debris from the system after a pump failure
- 4.6 describe hydraulic tests to troubleshoot operation problems; e.g., test analyzer
- 5. demonstrate the use and maintenance of hand and power tools**
 - 5.1 describe the selection, safety precautions, use and maintenance of non-cutting hand tools; e.g., shovel, rake
 - 5.2 describe the selection, safety precautions, use and maintenance of cutting hand tools; e.g., saw, pruners
 - 5.3 describe the selection, safety precautions, use and maintenance of selected electrical and air tools; e.g., drill, wrench
- 6. demonstrate basic competencies**
 - 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
 - 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
 - 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks
- 7. create a transitional strategy to accommodate personal changes and build personal values**
 - 7.1 identify short-term and long-term goals
 - 7.2 identify steps to achieve goals

COURSE LGA3410: SOILS 1

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills related to soils, including formation, components, properties and chemical factors.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. describe the process of natural soil formation

- 1.1 identify soil forming factors, including:
 - 1.1.1 parent material
 - 1.1.2 organisms
 - 1.1.3 climate
 - 1.1.4 relief
- 1.2 describe the characteristics of grassland, forest and urban soils, including:
 - 1.2.1 differences in organic matter
 - 1.2.2 differences in water; e.g., stable aggregates in soils
 - 1.2.3 differences in texture
 - 1.2.4 differences in arability
- 1.3 access Canadian soil map information

2. describe how soil components influence soil properties

- 2.1 describe an ideal mineral soil, including:
 - 2.1.1 mineral content
 - 2.1.2 water content
 - 2.1.3 air content
 - 2.1.4 organic material content
- 2.2 describe how soil components influence soil properties, including:
 - 2.2.1 texture
 - 2.2.2 development
 - 2.2.3 structure
 - 2.2.4 porosity

3. describe the effects of physical properties of soils on plant growth

- 3.1 evaluate soil texture and structure, including:
 - 3.1.1 sand
 - 3.1.2 silt
 - 3.1.3 clay
- 3.2 explain the relationship between plant growth, soil texture and soil structure, including:
 - 3.2.1 soil saturation
 - 3.2.2 field capacity
 - 3.2.3 permanent wilting point
 - 3.2.4 water availability

- 3.3 describe the formation of stable soil aggregates, including:
 - 3.3.1 composition
 - 3.3.2 texture
 - 3.3.3 biological activity
 - 3.3.4 climate
 - 3.3.5 mineral base
- 3.4 define soil compaction
- 3.5 calculate soil bulk density, including:
 - 3.5.1 powders
 - 3.5.2 granules
 - 3.5.3 particulate matter
- 3.6 describe methods and practices to prevent or ameliorate soil compaction issues, including:
 - 3.6.1 tillage management
 - 3.6.2 plant choice
 - 3.6.3 drainage
 - 3.6.4 erosion
- 3.7 provide pre-design recommendations to prevent/reduce soil compaction, including:
 - 3.7.1 tillage management
 - 3.7.2 traffic compaction routes
 - 3.7.3 plant choice
- 3.8 provide guidelines for soil preservation during stages of development, including:
 - 3.8.1 soil erosion
 - 3.8.2 plant protection
 - 3.8.3 drainage
 - 3.8.4 soil loss
- 3.9 interpret soil physical properties from soil test reports, including:
 - 3.9.1 amount of air
 - 3.9.2 amount of water
 - 3.9.3 amount of minerals
 - 3.9.4 amount of organic matter
- 4. describe the effects of soil chemical properties on plant growth**
 - 4.1 describe cation-exchange capacity (CEC)
 - 4.2 describe the principles of base saturation, including:
 - 4.2.1 base-cation saturation level
 - 4.2.2 calcium amount
 - 4.2.3 magnesium amount
 - 4.2.4 potassium amount
 - 4.2.5 sodium amount
 - 4.3 examine soil reaction (pH) and its effects on nutrient availability, including:
 - 4.3.1 cation absorption
 - 4.3.2 soil acidity
 - 4.3.3 colloids
 - 4.4 examine soil salinity and its effects on plant growth, including:
 - 4.4.1 salt
 - 4.4.2 permeability
 - 4.4.3 the saline seepage area
 - 4.4.4 the water table

- 4.5 examine soil sodicity and its effects on plant growth and soil structure, including:
 - 4.5.1 irrigation amounts
 - 4.5.2 plant type
 - 4.5.3 fertilization amounts
 - 4.5.4 sodium amounts
- 4.6 describe chemical and physical amendments used to modify soil chemistry, including:
 - 4.6.1 soil fertility
 - 4.6.2 filtration
 - 4.6.3 tillage
 - 4.6.4 compaction
- 4.7 perform lab tests to determine pH, electrical conductivity (EC), sodium absorption rate (SAR) and carbonate levels
- 4.8 interpret soil chemical properties from soil test reports
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
 - 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. create a transitional strategy to accommodate personal changes and build personal values**
 - 6.1 identify short-term and long-term goals
 - 6.2 identify steps to achieve goals

COURSE LGA3415: SOILS 2

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety
LGA3410: Soils 1

Description: Students develop basic skills related to soil, including the effects of water quality on soil and biological properties, sampling and fertility of soils.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. evaluate the effects of water quality on soil and plant growth

- 1.1 identify criteria for assessing water quality, including:
 - 1.1.1 permeability and tilth
 - 1.1.2 salinity
 - 1.1.3 toxicity and nutritional imbalance
- 1.2 perform water quality testing, including tests for:
 - 1.2.1 coliform bacteria
 - 1.2.2 nitrate ions
 - 1.2.3 sulfate ions
 - 1.2.4 fluoride
- 1.3 interpret water quality reports, including:
 - 1.3.1 data interpretation
 - 1.3.2 formulation of report from data
 - 1.3.3 written summary from data
- 1.4 classify water quality, considering the following classifications:
 - 1.4.1 outstanding
 - 1.4.2 designated drinking water
 - 1.4.3 excellent water quality
 - 1.4.4 good water quality
 - 1.4.5 acceptable water quality
- 1.5 identify amendments strategies employed when using poor quality water, including:
 - 1.5.1 plant selection
 - 1.5.2 filtration implementation
 - 1.5.3 drainage
 - 1.5.4 contamination

2. describe the effects of soil biological properties on plant growth

- 2.1 evaluate the role of soil biota, including:
 - 2.1.1 microbiota
 - 2.1.2 mesobiota
 - 2.1.3 macrobiota

- 2.2 describe the conditions that influence the growth and function of soil organisms, including:
 - 2.2.1 nutrient turnover
 - 2.2.2 mineralization
 - 2.2.3 fertilization
- 2.3 describe organic matter cycling and its influence on plant growth; e.g., organic fertilization
- 2.4 identify the roles that micro-organisms play in the nitrogen and sulphur cycles, including:
 - 2.4.1 mineralization
 - 2.4.2 immobilization
 - 2.4.3 oxidation
 - 2.4.4 sulphate reduction
- 2.5 explain the influence of C:N ratios in the process of organic matter breakdown, including:
 - 2.5.1 dynamic process
 - 2.5.2 nutrient release
 - 2.5.3 biochemical amount
 - 2.5.4 chemical amount
- 2.6 interpret lab results from compost testing, including:
 - 2.6.1 trace elements
 - 2.6.2 foreign matter amounts
 - 2.6.3 pathogens amounts
 - 2.6.4 organic contaminants
- 2.7 describe compost quality standards in Canada, including:
 - 2.7.1 trace elements
 - 2.7.2 foreign matter amounts
 - 2.7.3 maturity
 - 2.7.4 pathogens amounts
 - 2.7.5 organic contaminants
- 3. assess horticultural capabilities of soils**
 - 3.1 identify the essential plant nutrients and their plant-available forms, including:
 - 3.1.1 primary macronutrients
 - 3.1.2 secondary macronutrients
 - 3.1.3 micronutrients
 - 3.2 identify deficiencies of macronutrients and selected micronutrients, including:
 - 3.2.1 carbon
 - 3.2.2 hydrogen
 - 3.2.3 oxygen
 - 3.2.4 iron
 - 3.2.5 copper
 - 3.2.6 magnesium
 - 3.2.7 sodium
 - 3.3 compare natural and synthetic fertilizers, including:
 - 3.3.1 advantages
 - 3.3.2 disadvantages
 - 3.3.3 NPK ratios
 - 3.3.4 rate of production
 - 3.3.5 preparation
 - 3.3.6 costs
 - 3.3.7 nutrients

- 3.4 perform basic fertilizer calculations, including:
 - 3.4.1 nitrogen amounts
 - 3.4.2 application amounts
 - 3.4.3 soil types
- 3.5 identify the process of soil sampling for selected landscape situation, including:
 - 3.5.1 soil analysis
 - 3.5.2 saturation levels
 - 3.5.3 plant requirements
 - 3.5.4 soil usage
 - 3.5.5 compaction
- 3.6 recommend soil amendments for a selected soil, including:
 - 3.6.1 soil properties
 - 3.6.2 soil type
 - 3.6.3 plant toleration
 - 3.6.4 plant type
 - 3.6.5 saturation levels
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3420: PLANT IDENTIFICATION

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills related to identifying selected plants.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. identify selected plants

- 1.1 demonstrate procedures in plant specimen collection for herbarium samples, including:
 - 1.1.1 collection management
 - 1.1.2 preservation
 - 1.1.3 categorization
- 1.2 demonstrate procedures in plant specimen preparation for herbarium samples, including:
 - 1.2.1 air drying
 - 1.2.2 formaldehyde preservation
 - 1.2.3 storage location

2. identify selected plant families

- 2.1 identify specific taxonomic features of selected plant families and genera, including:
 - 2.1.1 woody plants
 - 2.1.2 herbaceous plants
 - 2.1.3 trees and shrubs
 - 2.1.4 annuals
- 2.2 use taxonomic keys to identify plants, including:
 - 2.2.1 flower form
 - 2.2.2 leaf shape
 - 2.2.3 fruit form
 - 2.2.4 bark type

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE LGA3425: PLANT TAXONOMY

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety
LGA3420: Plant Identification

Description: Students develop basic skills of plant taxonomy in relation to plant identification and plant maintenance.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. identify selected plants

1.1 identify selected woody and herbaceous plants by growth habit and ornamental features, including:

- 1.1.1 annual herbaceous plant types
- 1.1.2 biannual herbaceous plant types
- 1.1.3 perennial herbaceous plant types
- 1.1.4 trees and shrubs

1.2 identify selected woody and herbaceous plants relative to their role in natural ecosystem, including:

- 1.2.1 natural annual plant types
- 1.2.2 natural biannual plant types
- 1.2.3 natural trees and shrubs

2. identify selected plant families

2.1 identify primary horticultural references for plant identification, including:

- 2.1.1 colour-height distribution of flowers
- 2.1.2 seasonal distribution of flowers
- 2.1.3 propagation

2.2 identify current issues in plant identification and classification for the horticulture industry; e.g., medicinal plant identification/classification

2.3 apply binomial nomenclature (i.e., genus and specific epithet) to identify selected species, including:

- 2.3.1 aceraceae
- 2.3.2 betulaceae
- 2.3.3 cupressaceae
- 2.3.4 cornaceae
- 2.3.5 oleaceae
- 2.3.6 fabaceae
- 2.3.7 pinaceae
- 2.3.8 rosaceae
- 2.3.9 salicaceae
- 2.3.10 ulmaceae
- 2.3.11 asteraceae
- 2.3.12 begoniaceae
- 2.3.13 brassicaceae
- 2.3.14 geraniaceae
- 2.3.15 lobeliaceae
- 2.3.16 portulacaceae
- 2.3.17 scrophulariaceae
- 2.3.18 solanaceae
- 2.3.19 violaceae

3. demonstrate basic competencies

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

4. create a transitional strategy to accommodate personal changes and build personal values

- 4.1 identify short-term and long-term goals
- 4.2 identify steps to achieve goals

COURSE LGA3430: PLANTS & LANDSCAPE

Level:	First Period Apprenticeship
Prerequisite:	LGA3900: Apprenticeship Safety LGA3420: Plant Identification LGA3425: Plant Taxonomy
Description:	Students develop basic skills related to identifying selected plants.
Parameters:	Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
Resources:	Please refer to the books and materials listed at Tradesecrets: Trades & Occupations List .
Outcomes:	The student will:

1. select plant materials for use in the landscape

- 1.1 describe the function, value and physical characteristics of plants for the landscape, including:
 - 1.1.1 texture
 - 1.1.2 form
 - 1.1.3 size
 - 1.1.4 colour
 - 1.1.5 functionality (e.g., providing shade)
- 1.2 describe growth and maintenance requirements for selected species, including:
 - 1.2.1 pruning
 - 1.2.2 location selection
 - 1.2.3 sunlight availability versus sunlight need
 - 1.2.4 soil type
 - 1.2.5 temperature
 - 1.2.6 wind

2. select plant materials for annuals in the landscape

- 2.1 describe procedures for establishing annual bedding plants in containers and ground beds, including:
 - 2.1.1 soil type
 - 2.1.2 temperature
 - 2.1.3 watering amounts
 - 2.1.4 growing time
 - 2.1.5 sunlight availability
 - 2.1.6 cultivation
 - 2.1.7 adjacent border selection for ground beds
- 2.2 describe practices for maintaining annual bedding plants throughout the growing season, including:
 - 2.2.1 soil type
 - 2.2.2 temperature
 - 2.2.3 watering amounts
 - 2.2.4 growing time
 - 2.2.5 sunlight availability
 - 2.2.6 cultivation
 - 2.2.7 adjacent border selection for ground beds

- 3. demonstrate basic competencies**
 - 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
 - 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
 - 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
 - 4.1 identify short-term and long-term goals
 - 4.2 identify steps to achieve goals

COURSE LGA3435: BOTANY 1

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills related to botany, such as identifying the functions of plant cells and tissues, plant stems and plant leaves.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. identify the roles and functions of selected plant cells and tissues

- 1.1 describe the role of selected components of a plant cell, including:
 - 1.1.1 cell wall
 - 1.1.2 chloroplast
 - 1.1.3 nucleus
 - 1.1.4 nucleolus
 - 1.1.5 plasmodesmata
 - 1.1.6 vacuole
 - 1.1.7 tonoplast
- 1.2 describe the role of selected types of meristematic tissues, including:
 - 1.2.1 vascular tissue
 - 1.2.2 dermal tissue
 - 1.2.3 ground tissue
- 1.3 describe the function of selected permanent tissues, including:
 - 1.3.1 parenchyma
 - 1.3.2 collenchyma
 - 1.3.3 sclerenchyma
 - 1.3.4 xylem
 - 1.3.5 phloem

2. identify the functions and growth patterns of a plant stem

- 2.1 outline the main functions of a plant stem, including:
 - 2.1.1 leaf support
 - 2.1.2 flower support
 - 2.1.3 food transportation
 - 2.1.4 water transportation
- 2.2 locate the main external features of a stem, including the:
 - 2.2.1 ligule
 - 2.2.2 internode
 - 2.2.3 node
 - 2.2.4 nodal collar
 - 2.2.5 prophyllum

- 2.3 differentiate between old and new growth on a woody stem, including:
 - 2.3.1 primary growth
 - 2.3.2 secondary growth
 - 2.3.3 bud formation
 - 2.3.4 leaf growth
- 2.4 locate selected internal regions of a stem, including the:
 - 2.4.1 pith
 - 2.4.2 cambium
 - 2.4.3 cortex
 - 2.4.4 epidermis
 - 2.4.5 xylem
 - 2.4.6 phloem
- 2.5 explain the process of primary growth, considering:
 - 2.5.1 cell division
 - 2.5.2 cell elongation
- 2.6 explain the process of secondary growth, including:
 - 2.6.1 stem girth
 - 2.6.2 root girth
 - 2.6.3 secondary xylem
 - 2.6.4 secondary phloem
- 2.7 compare the anatomy, morphology and growth patterns of monocot and dicot systems, including:
 - 2.7.1 the function of cotyledons
 - 2.7.2 the function of endosperm
 - 2.7.3 roots system type
 - 2.7.4 leaf type
 - 2.7.5 differences in vascular bundles
 - 2.7.6 a comparison of horticulturally important specialized stems
- 3. identify the main functions of leaves**
 - 3.1 describe the main functions of leaves, including:
 - 3.1.1 manufacture of food
 - 3.1.2 interchange of gases
 - 3.1.3 evaporation of water
 - 3.1.4 storage of food
 - 3.1.5 propagation
 - 3.2 use terminology to identify selected aspects of leaf morphology, including:
 - 3.2.1 leaf parts
 - 3.2.2 leaf characteristics
 - 3.2.3 leaf attachment
 - 3.2.4 leaf arrangement
 - 3.2.5 leaf shapes
 - 3.2.6 leaf margins
 - 3.2.7 leaf venation
 - 3.2.8 leaf surface
 - 3.3 explain the role of selected tissues found in a leaf, including:
 - 3.3.1 epidermis
 - 3.3.2 mesophyll
 - 3.3.3 vascular bundles
 - 3.4 describe the process of leaf initiation and development, including:
 - 3.4.1 leaf patterns
 - 3.4.2 leaf structure
 - 3.4.3 leaf shape

- 3.5 compare monocot and dicot leaf morphology and anatomy, including:
 - 3.5.1 epidermis
 - 3.5.2 stomata
 - 3.5.3 mesophyll
 - 3.5.4 parenchyma
 - 3.5.5 vascular bundles
- 3.6 describe the purpose of selected specialized leaves, including:
 - 3.6.1 shade leaves
 - 3.6.2 leaf modifications
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3440: BOTANY 2

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety
LGA3435: Botany 1

Description: Students develop basic skills related to botany, such as identifying the functions of plant roots and plant flowers, comparing the process of fruit development and describing the life cycles of plants.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. identify the functions and growth characteristics of roots

- 1.1 describe the main functions of roots, including:
 - 1.1.1 water absorption
 - 1.1.2 nutrient absorption
 - 1.1.3 root support
 - 1.1.4 reproduction
 - 1.1.5 storage of water and nutrients
- 1.2 compare the physical and growth characteristics of different root systems, including:
 - 1.2.1 taproot
 - 1.2.2 fibrous
 - 1.2.3 rhizomes
 - 1.2.4 stolons
 - 1.2.5 adventitious
- 1.3 describe the function of selected regions in the internal structure of a root, including:
 - 1.3.1 root hair
 - 1.3.2 epidermis
 - 1.3.3 endodermis
 - 1.3.4 xylem
 - 1.3.5 phloem
 - 1.3.6 pericycle
 - 1.3.7 cortex
- 1.4 describe the process of root growth, including:
 - 1.4.1 apical meristem
 - 1.4.2 primary growth
 - 1.4.3 secondary growth
- 1.5 identify factors that promote and inhibit root growth and development, including:
 - 1.5.1 soil types
 - 1.5.2 water drainage
 - 1.5.3 water absorption
 - 1.5.4 location

- 1.6 explain the function of selected specialized roots, including:
 - 1.6.1 pneumatophores
 - 1.6.2 epiphytes
 - 1.6.3 suckers
- 2. identify flower types and their functions**
 - 2.1 describe the functions of flowers, including:
 - 2.1.1 reproduction
 - 2.1.2 pollination
 - 2.2 explain the process of pollination and fertilization, including:
 - 2.2.1 attraction methods
 - 2.2.2 pollination mechanisms
 - 2.2.3 flower-pollinator relationships
 - 2.2.4 dispersal
 - 2.3 apply terminology to selected flower morphology, including:
 - 2.3.1 peduncle
 - 2.3.2 receptacle
 - 2.3.3 sepal
 - 2.3.4 petal
 - 2.3.5 stamen
 - 2.3.6 anther
 - 2.3.7 pistil
 - 2.3.8 stigma
 - 2.3.9 ovary
 - 2.4 compare the features of monocot and dicot flowers, including:
 - 2.4.1 embryo type
 - 2.4.2 pollen in relation to furrow or pores
 - 2.4.3 multiples of flower parts
- 3. compare the process of fruit development in fruit types**
 - 3.1 describe the process of fruit development, including:
 - 3.1.1 fertilization
 - 3.1.2 embryology
 - 3.1.3 fruits and seeds
 - 3.2 identify selected types of fruit, including:
 - 3.2.1 temperate
 - 3.2.2 tropical
 - 3.2.3 sub-tropical
 - 3.2.4 inedible
 - 3.2.5 accessory
 - 3.2.6 aggregate
 - 3.2.7 multiple
 - 3.3 compare the structure of seeds and fruit, including:
 - 3.3.1 mature ovules
 - 3.3.2 external seeds

- 3.4 identify the major internal parts of a fruit, including:
 - 3.4.1 endocarp
 - 3.4.2 seed
 - 3.4.3 tissue
 - 3.4.4 pericarp
 - 3.4.5 exocarp
 - 3.4.6 mesocarp
 - 3.4.7 endocarp
- 4. describe the life cycle of plants**
 - 4.1 describe plants in terms of their life cycles, including:
 - 4.1.1 annuals
 - 4.1.2 perennials
 - 4.2 explain the relevance of plant life cycles in terms of horticultural practices, including:
 - 4.2.1 selection
 - 4.2.2 sustainability
 - 4.2.3 maintenance
 - 4.2.4 purpose
 - 4.2.5 appeal and design
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
 - 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. create a transitional strategy to accommodate personal changes and build personal values**
 - 6.1 identify short-term and long-term goals
 - 6.2 identify steps to achieve goals

COURSE LGA3445: GREENHOUSE ENVIRONMENT

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety

Description: Students compare plant containers and growing media; explain how an environment influences plant growth; and demonstrate propagation techniques related to greenhouse production.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. compare plant containers and growing media for plant production

- 1.1 identify selected greenhouse containers and their uses, including:
 - 1.1.1 clay
 - 1.1.2 plastic
 - 1.1.3 wood
 - 1.1.4 hanging
 - 1.1.5 organic
- 1.2 compare containers used in greenhouse production, including:
 - 1.2.1 clay
 - 1.2.2 plastic
 - 1.2.3 wood
 - 1.2.4 hanging
 - 1.2.5 organic
- 1.3 describe the characteristics of selected container media components, including:
 - 1.3.1 peat moss
 - 1.3.2 compost bark
 - 1.3.3 vermiculite
 - 1.3.4 coir
 - 1.3.5 perlite
 - 1.3.6 polystyrene foam
 - 1.3.7 air space
- 1.4 compare selected greenhouse media mixtures and amendments; e.g., peat, vermiculite, perlite
- 1.5 demonstrate selected media preparation methods, including:
 - 1.5.1 wetting agents
 - 1.5.2 mixing equipment
 - 1.5.3 water absorption

2. explain how a greenhouse environment can influence plant growth

- 2.1 describe the relationship between stage of growth and environmental requirements, including:
 - 2.1.1 light and shade
 - 2.1.2 heat and loss of heat
 - 2.1.3 cooling
 - 2.1.4 humidity
 - 2.1.5 ventilation
- 2.2 explain how to manipulate photoperiod to control growth, including:
 - 2.2.1 creating natural photoperiod
 - 2.2.2 creating long-day manipulation
 - 2.2.3 creating short-day manipulation
 - 2.2.4 cycling manipulation
- 2.3 describe the relationship between stage of growth and nutrient requirements, including:
 - 2.3.1 germination and root emergence fertilization
 - 2.3.2 opening of the cotyledon fertilization
 - 2.3.3 first leaf development fertilization
 - 2.3.4 first leaf development transplant fertilization
- 2.4 describe the characteristics and application methods of fertilizers used in greenhouse production, including:
 - 2.4.1 pre-plant fertilization
 - 2.4.2 post-plant fertilization
 - 2.4.3 water soluble fertilization
- 2.5 describe the effect of water quality and temperature on plant uptake and growth, including:
 - 2.5.1 oxygen amounts
 - 2.5.2 water nutrients

3. demonstrate propagation techniques for greenhouse production

- 3.1 practise selected vegetative propagation techniques, including:
 - 3.1.1 runner separation
 - 3.1.2 grafting
 - 3.1.3 cloning
 - 3.1.4 seeding
- 3.2 demonstrate seeding techniques, including:
 - 3.2.1 direct seeding
 - 3.2.2 group seeding
 - 3.2.3 pre-seeding
 - 3.2.4 post-seeding
 - 3.2.5 transplantation
- 3.3 explain general germination requirements, considering:
 - 3.3.1 temperature control
 - 3.3.2 fertilization
 - 3.3.3 water control
 - 3.3.4 light amount
 - 3.3.5 ventilation
 - 3.3.6 heating and cooling
- 3.4 describe the advantages and disadvantages of plug production, including:
 - 3.4.1 speed
 - 3.4.2 growing time
 - 3.4.3 plant stress
 - 3.4.4 cost

4. demonstrate basic competencies

4.1 demonstrate fundamental skills to:

- 4.1.1 communicate
- 4.1.2 manage information
- 4.1.3 use numbers
- 4.1.4 think and solve problems

4.2 demonstrate personal management skills to:

- 4.2.1 demonstrate positive attitudes and behaviours
- 4.2.2 be responsible
- 4.2.3 be adaptable
- 4.2.4 learn continuously
- 4.2.5 work safely

4.3 demonstrate teamwork skills to:

- 4.3.1 work with others
- 4.3.2 participate in projects and tasks

5. create a transitional strategy to accommodate personal changes and build personal values

5.1 identify short-term and long-term goals

5.2 identify steps to achieve goals

COURSE LGA3450: GREENHOUSE PRODUCTION

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
LGA3445: Greenhouse Environment
- Description:** Students demonstrate transplanting and potting techniques; explain procedures for hardening off plants; and describe influences on plant health related to greenhouse production.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. demonstrate transplanting and potting techniques

- 1.1 practise the transplanting of seedlings
- 1.2 describe maintenance requirements for new transplants, including:
 - 1.2.1 fertilization
 - 1.2.2 humidity
 - 1.2.3 ventilation
 - 1.2.4 watering
- 1.3 demonstrate the potting-up of vegetative cuttings, including:
 - 1.3.1 container size selection
 - 1.3.2 container type selection
- 1.4 demonstrate repotting methods, including:
 - 1.4.1 preparing the pot
 - 1.4.2 root ball
 - 1.4.3 bare root removal
 - 1.4.4 total removal

2. explain the procedures for hardening off plants

- 2.1 explain the benefits of hardening off plants, including:
 - 2.1.1 risk minimization
 - 2.1.2 acclimatization
 - 2.1.3 environmental weaning and acceptance
 - 2.1.4 hardier growth
- 2.2 describe procedures for hardening off plants, including:
 - 2.2.1 gradual outdoor introduction
 - 2.2.2 outdoor placement
 - 2.2.3 effect pot type
- 2.3 describe the tolerance factors of selected plants, including:
 - 2.3.1 light quality
 - 2.3.2 light intensity
 - 2.3.3 light duration
 - 2.3.4 soil quality
 - 2.3.5 fertilization frequency
 - 2.3.6 drought tolerance

- 3. describe the greenhouse pests, diseases and environmental influences on plant health**
 - 3.1 identify common greenhouse pests and their damage symptoms, including:
 - 3.1.1 aphids
 - 3.1.2 gnats
 - 3.1.3 leaf miners
 - 3.1.4 spider mites
 - 3.1.5 whiteflies
 - 3.2 identify common greenhouse diseases and their damage symptoms, including:
 - 3.2.1 fungi
 - 3.2.2 mildew
 - 3.2.3 root and crown rot
 - 3.2.4 vascular wilt
 - 3.2.5 plant viruses
 - 3.2.6 bacterial diseases
 - 3.3 describe cultural practices useful in reducing the incidence of plant disease, including:
 - 3.3.1 disease management tactics applied before infection
 - 3.3.2 therapy or curative action
 - 3.3.3 heat or chemical treatment
 - 3.3.4 plant quarantine
 - 3.4 describe abiotic causes of poor crop health, including:
 - 3.4.1 intense sunlight or wind
 - 3.4.2 living disturbances
 - 3.4.3 ill soil
 - 3.5 identify symptoms of phytotoxic pollutants in greenhouse environments, including:
 - 3.5.1 air quality
 - 3.5.2 water quality
 - 3.5.3 soil quality
 - 3.5.4 nutritional disorders
 - 3.5.5 pests
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3455: GREENHOUSE SYSTEM

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety
LGA3445: Greenhouse Environment
LGA3450: Greenhouse Production

Description: Students describe methods for handling crops; evaluate structures and equipment; and operate environmental control systems related to the greenhouse system.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. describe efficient methods for packaging, storing and shipping greenhouse crops

- 1.1 outline common practices in the packaging, storage and shipment of crops produced in the greenhouse, including:
 - 1.1.1 packaging components
 - 1.1.2 packaging materials
 - 1.1.3 plant moisture variability
 - 1.1.4 container selection
 - 1.1.5 shipping rack suitability
 - 1.1.6 shipping time
- 1.2 describe conditions that affect plant value throughout handling and shipping practices, including:
 - 1.2.1 water saturation
 - 1.2.2 humidity
 - 1.2.3 ventilation
 - 1.2.4 wilting
 - 1.2.5 disease

2. evaluate greenhouse structures and equipment

- 2.1 identify typical greenhouse designs, including:
 - 2.1.1 Quonset
 - 2.1.2 A-frame
 - 2.1.3 tri-penta
 - 2.1.4 dome
 - 2.1.5 gothic arch
 - 2.1.6 slant side
 - 2.1.7 gable roof
- 2.2 assess the orientation of greenhouse structures, considering:
 - 2.2.1 horticultural considerations
 - 2.2.2 adjacent structures

- 2.3 compare materials used in greenhouse construction and layout, including:
 - 2.3.1 glazing material
 - 2.3.2 excursion systems
 - 2.3.3 ground cover
 - 2.3.4 ventilation requirements
 - 2.3.5 containerization
 - 2.3.6 water considerations and standards
 - 2.3.7 structural considerations

3. operate greenhouse environmental control systems

- 3.1 explain procedures for temperature control in a greenhouse, including:
 - 3.1.1 pod and fan
 - 3.1.2 natural ventilation
 - 3.1.3 tunnel
 - 3.1.4 air exchangers
 - 3.1.5 controlled thermostat systems
 - 3.1.6 cooling systems
 - 3.1.7 portable heating systems
- 3.2 describe systems used to control greenhouse environments, including:
 - 3.2.1 manual
 - 3.2.2 thermostat controllers
 - 3.2.3 step controllers
 - 3.2.4 dedicated microprocessors
 - 3.2.5 computers
 - 3.2.6 sensors
- 3.3 explain procedures for supplying water to greenhouse crops, including:
 - 3.3.1 water supply
 - 3.3.2 water source
 - 3.3.3 plumbing
 - 3.3.4 natural water
 - 3.3.5 drainage system
- 3.4 compare selected systems for irrigation and misting, including:
 - 3.4.1 drip irrigation
 - 3.4.2 sprinkler system
 - 3.4.3 fog misting
 - 3.4.4 fan misting
- 3.5 compare selected lighting systems used in the production of greenhouse crops, including:
 - 3.5.1 artificial lighting
 - 3.5.2 natural lighting
 - 3.5.3 lighting monitors
 - 3.5.4 supplemental lighting
 - 3.5.5 shade controlling systems
- 3.6 explain the practice of carbon dioxide enrichment of greenhouse crops, including:
 - 3.6.1 photosynthesis
 - 3.6.2 plant sugars
 - 3.6.3 plant respiration
 - 3.6.4 dry matter content
 - 3.6.5 parts per million
 - 3.6.6 stomal openings
 - 3.6.7 diffusion

- 3.7 compare selected carbon dioxide injection systems, including:
 - 3.7.1 vaporizers
 - 3.7.2 boiler systems
 - 3.7.3 natural systems
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3460: SITE PREPARATION

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills in landscape construction and maintenance related to site preparation.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. demonstrate procedures for site grading

- 1.1 perform slope calculations for site grading and preparation, including:
 - 1.1.1 slope
 - 1.1.2 rise
 - 1.1.3 run
 - 1.1.4 elevation
 - 1.1.5 length
- 1.2 describe technical systems that provide drainage on a landscape construction site, including:
 - 1.2.1 surface drainage systems
 - 1.2.2 subsurface drainage systems
- 1.3 calculate soil volumes for selected site grading requirements, including:
 - 1.3.1 length
 - 1.3.2 width
 - 1.3.3 depth
 - 1.3.4 cubic feet/metres

2. demonstrate procedures for site preparation

- 2.1 compare the capabilities of selected equipment used to cut/fill a landscape site, including:
 - 2.1.1 shovels
 - 2.1.2 excavators
 - 2.1.3 loaders
 - 2.1.4 scrapers
- 2.2 sketch a basic site drainage plan, including:
 - 2.2.1 high point
 - 2.2.2 low point
 - 2.2.3 holding area
 - 2.2.4 catchment
 - 2.2.5 runoff areas
 - 2.2.6 adjacent considerations
 - 2.2.7 plant considerations
- 2.3 demonstrate final site preparation (fine grading), including:
 - 2.3.1 debris removal
 - 2.3.2 weed maintenance
 - 2.3.3 topsoil grading
 - 2.3.4 fertilization

3. demonstrate basic competencies

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

4. create a transitional strategy to accommodate personal changes and build personal values

4.1 identify short-term and long-term goals

4.2 identify steps to achieve goals

COURSE LGA3465: TURF

Level: First Period Apprenticeship

Prerequisite: LGA3900: Apprenticeship Safety
LGA3460: Site Preparation

Description: Students develop basic skills in landscape construction and maintenance related to turf selection and installation.

Parameters: Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.

Resources: Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).

Outcomes: The student will:

1. explain the characteristics of turf grass and sod

- 1.1 describe the characteristics of selected types of turf grasses, including:
 - 1.1.1 Kentucky bluegrass
 - 1.1.2 ryegrass
 - 1.1.3 tall fescues
 - 1.1.4 fine fescues
 - 1.1.5 mixes and blends
 - 1.1.6 specialty grasses
- 1.2 describe the effects of harvesting, handling and storage on sod quality, including:
 - 1.2.1 rolled harvest
 - 1.2.2 flat harvest
 - 1.2.3 cutting time
 - 1.2.4 heat accumulation
 - 1.2.5 pallet storage
 - 1.2.6 rolled storage
 - 1.2.7 controlled environment storage
 - 1.2.8 uncontrolled environment storage

2. demonstrate procedures for seeding practices in turf development

- 2.1 describe the process of seedbed preparation, including:
 - 2.1.1 weed control
 - 2.1.2 soil preparation
 - 2.1.3 soil compaction
 - 2.1.4 fertilization considerations
- 2.2 calculate seeding rates, including:
 - 2.2.1 area measurement
 - 2.2.2 seeding rates of various grasses
 - 2.2.3 seeding purpose
 - 2.2.4 soil and land attributes

- 2.3 describe selected seeding practices, including:
 - 2.3.1 bare soil or tilled seeding
 - 2.3.2 overseeding
 - 2.3.3 broadcast seeding
 - 2.3.4 hydroseeding
 - 2.3.5 slit seeder seeding
- 3. demonstrate procedures for laying sod and establishing turf grasses**
 - 3.1 demonstrate procedures for laying sod, including:
 - 3.1.1 site preparation
 - 3.1.2 soil preparation
 - 3.1.3 soil testing
 - 3.1.4 turf installation
 - 3.1.5 watering
 - 3.2 describe procedures for establishing turf grasses, including:
 - 3.2.1 site preparation
 - 3.2.2 soil preparation
 - 3.2.3 seeding
 - 3.2.4 fertility
 - 3.2.5 weed control
 - 3.2.6 mulching
 - 3.2.7 watering
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3470: WOODY PLANTS

- Level:** First Period Apprenticeship
- Prerequisite:** LGA3900: Apprenticeship Safety
- Description:** Students develop basic skills in landscape construction and maintenance related to woody plant selection, installation and pruning fundamentals.
- Parameters:** Access to a material work centre, complete with basic landscape gardening tools and materials, and to instruction from an individual with journey person certification in the landscape gardening trade.
- Resources:** Please refer to the books and materials listed at [Tradesecrets: Trades & Occupations List](#).
- Outcomes:** The student will:

1. identify criteria for sourcing and selecting woody plant material

- 1.1 interpret industry standards and specifications for woody plant material; e.g., tree certification standards
- 1.2 select healthy stock for installation, based on:
 - 1.2.1 foliage evaluation
 - 1.2.2 shape inspection
 - 1.2.3 insect and disease inspection
 - 1.2.4 root system inspection
 - 1.2.5 stem damage
 - 1.2.6 surrounding weeds
 - 1.2.7 root ball
 - 1.2.8 bud and flower inspection

2. demonstrate selected installation practices for woody plants

- 2.1 interpret planting specifications and site layout, considering:
 - 2.1.1 purpose
 - 2.1.2 shade
 - 2.1.3 light
 - 2.1.4 condition of plant
- 2.2 demonstrate loading and unloading procedures, including:
 - 2.2.1 hand loading and unloading
 - 2.2.2 machine loading and unloading
- 2.3 describe on-site storage of woody plant material, considering:
 - 2.3.1 watering needs
 - 2.3.2 shade and sun
 - 2.3.3 protection from the wind
 - 2.3.4 planting proximity
 - 2.3.5 movement damage
- 2.4 demonstrate woody plant material installation procedures, considering:
 - 2.4.1 containerization
 - 2.4.2 digging tools
 - 2.4.3 fertilization
 - 2.4.4 mulch
 - 2.4.5 stability versus environment

- 2.5 demonstrate plant support methods, considering:
 - 2.5.1 netting
 - 2.5.2 stakes
 - 2.5.3 teepees or pyramids
 - 2.5.4 trellis
 - 2.5.5 twine
 - 2.5.6 hoops
 - 2.5.7 plant ties
- 2.6 demonstrate maintenance practices employed during the establishment periods, including:
 - 2.6.1 irrigation
 - 2.6.2 weed control
 - 2.6.3 erosion control
 - 2.6.4 herbivore control
 - 2.6.5 monitoring

3. demonstrate basic pruning techniques

- 3.1 explain the reasons for pruning woody plants, including:
 - 3.1.1 reducing plant health risk
 - 3.1.2 improving aesthetics
 - 3.1.3 improving overall plant structure
- 3.2 describe the effects of pruning, including:
 - 3.2.1 strengthening overall root system strength
 - 3.2.2 restoring between top and root system
 - 3.2.3 stimulating re-growth stimulation
 - 3.2.4 improving aesthetics
- 3.3 define pruning terminology, including:
 - 3.3.1 branch
 - 3.3.2 branch bark ridge
 - 3.3.3 branch collar
 - 3.3.4 callus
 - 3.3.5 canopy
 - 3.3.6 cambium
 - 3.3.7 clean cuts
 - 3.3.8 closure
 - 3.3.9 crown
 - 3.3.10 crown elevation
 - 3.3.11 cut
 - 3.3.12 cutting back
 - 3.3.13 decay
 - 3.3.14 dormant
 - 3.3.15 drop crotch pruning
 - 3.3.16 girdling roots
 - 3.3.17 lateral
 - 3.3.18 leader
 - 3.3.19 luting
 - 3.3.20 limb
 - 3.3.21 line clearance
 - 3.3.22 parent stem
 - 3.3.23 photosynthesis
 - 3.3.24 pollarding
 - 3.3.25 pre-cut
 - 3.3.26 sap flow

- 3.3.27 scars
- 3.3.28 sucker
- 3.3.29 sunburn
- 3.3.30 sunscald
- 3.3.31 thinning
- 3.3.32 topiary
- 3.3.33 topping
- 3.3.34 tracing
- 3.3.35 trimming
- 3.3.36 under clearance
- 3.3.37 water sprout
- 3.3.38 wound
- 3.4 identify selected pruning tools and equipment, including:
 - 3.4.1 pruning saw
 - 3.4.2 cut and hold pruner
 - 3.4.3 lightweight pruner
 - 3.4.4 hand shear
 - 3.4.5 lopping shear
 - 3.4.6 pole pruner
 - 3.4.7 hedge shears
 - 3.4.8 personal protective equipment; i.e., safety wear for eyes, head, body, feet and hands
- 3.5 demonstrate selected pruning techniques, including:
 - 3.5.1 heading
 - 3.5.2 thinning
 - 3.5.3 drop crotching
 - 3.5.4 cleaning
 - 3.5.5 raising
 - 3.5.6 reduction
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE LGA3475: LGA PRACTICUM A

Level: First Period Apprenticeship

Prerequisite: None

Description: Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

Parameters: This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journeyperson certification or an experienced professional with journeyperson certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
 - 1.1 identify regulations and regulatory bodies related to the credential
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities
 - 1.2.3 code of ethics
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of competencies developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
 - 2.4 evaluate the work environment in terms of:
 - 2.4.1 location
 - 2.4.2 floor plan of work area
 - 2.4.3 analysis of workflow patterns

- 2.5 evaluate a professional in a related occupation in terms of:
 - 2.5.1 training and certification
 - 2.5.2 interpersonal skills
 - 2.5.3 technical skills
 - 2.5.4 professional ethics

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

COURSE LGA3480: LGA PRACTICUM B

Level: First Period Apprenticeship

Prerequisite: None

Description: Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

Parameters: This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journey person certification or an experienced professional with journey person certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
 - 1.1 identify regulations and regulatory bodies related to the credential
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities
 - 1.2.3 code of ethics
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of competencies developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
 - 2.4 evaluate the work environment in terms of:
 - 2.4.1 location
 - 2.4.2 floor plan of work area
 - 2.4.3 analysis of workflow patterns

- 2.5 evaluate a professional in a related occupation in terms of:
 - 2.5.1 training and certification
 - 2.5.2 interpersonal skills
 - 2.5.3 technical skills
 - 2.5.4 professional ethics

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

COURSE LGA3485: LGA PRACTICUM C

Level: First Period Apprenticeship

Prerequisite: None

Description: Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

Parameters: This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journey person certification or an experienced professional with journey person certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
 - 1.1 identify regulations and regulatory bodies related to the credential
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities
 - 1.2.3 code of ethics
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of competencies developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
 - 2.4 evaluate the work environment in terms of:
 - 2.4.1 location
 - 2.4.2 floor plan of work area
 - 2.4.3 analysis of workflow patterns

- 2.5 evaluate a professional in a related occupation in terms of:
 - 2.5.1 training and certification
 - 2.5.2 interpersonal skills
 - 2.5.3 technical skills
 - 2.5.4 professional ethics

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

COURSE LGA3490: LGA PRACTICUM D

Level: First Period Apprenticeship

Prerequisite: None

Description: Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

Parameters: This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journey person certification or an experienced professional with journey person certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
 - 1.1 identify regulations and regulatory bodies related to the credential
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities
 - 1.2.3 code of ethics
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of competencies developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
 - 2.4 evaluate the work environment in terms of:
 - 2.4.1 location
 - 2.4.2 floor plan of work area
 - 2.4.3 analysis of workflow patterns

- 2.5 evaluate a professional in a related occupation in terms of:
 - 2.5.1 training and certification
 - 2.5.2 interpersonal skills
 - 2.5.3 technical skills
 - 2.5.4 professional ethics

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

COURSE LGA3900: APPRENTICESHIP SAFETY

Level: First Period Apprenticeship

Prerequisite: None

Description: Students develop knowledge, skills and attitudes in the practice of workshop health and safety, communication and career planning.

Parameters: Access to a materials work centre and to instruction from an individual with specialized training in occupational health and safety (and understanding of the landscape gardener trade) and/or a landscape gardener.

ILM Resources: Safety Legislation, Regulations and Industry Policy in the Trades 650101a; Climbing, Lifting, Rigging and Hoisting 650101b; Hazardous Materials and Fire Protection 650101c; Communication 090101d

Note: This course may promote discussions around sensitive topics (e.g., injury and death) in the context of student safety with respect to workplace hazards.

Outcomes: The student will:

1. describe legislation, regulations and practices intended to ensure a safe workplace in the landscape gardener apprenticeship trade

- 1.1 demonstrate the ability to apply the *Occupational Health and Safety (OHS) Act, Regulation and Code*, as well as the changes from Bill C-45
- 1.2 explain the core requirements applicable to all industries, including:
 - 1.2.1 engineering controls
 - 1.2.2 administrative controls
 - 1.2.3 personal protective equipment (PPE)
- 1.3 demonstrate an understanding of the 26 parts of the OHS Code requirements applicable to all industries
- 1.4 demonstrate an understanding of the 12 parts of the OHS Code requirements applicable to specific industries and activities
- 1.5 demonstrate an understanding of the 11 OHS Code Schedules that the Explanation Guide does not address
- 1.6 explain the role of the employer and employee in regard to occupational health and safety legislation, considering:
 - 1.6.1 employer responsibilities (OHS Regulation)
 - 1.6.2 employee responsibilities (OHS Regulation)
 - 1.6.3 Workplace Hazardous Materials Information System (WHMIS)
 - 1.6.4 fire regulations
 - 1.6.5 Workers' Compensation Board (WCB)
 - 1.6.6 related advisory bodies and agencies; e.g., Alberta Construction Safety Association (ACSA), Construction Owners Association of Alberta (COAA), Occupational Health and Safety Council (OHSC), Work Safe Alberta, Safety Codes Council
- 1.7 explain industry practices for hazard assessment and control procedures in four main hazard categories, including:
 - 1.7.1 biological
 - 1.7.2 chemical

- 1.7.3 ergonomic
- 1.7.4 physical hazards
- 1.8 identify and describe hazard assessment tools that both employees and employers must use in assessing and controlling work-site hazards, including:
 - 1.8.1 work-site hazard identification and assessment
 - 1.8.2 health and safety plan
 - 1.8.3 joint work-site health and safety committee
 - 1.8.4 emergency response plans
 - 1.8.5 first-aid and incident reports
- 1.9 identify and describe employer engineering controls that provide the highest level of worker protection, including:
 - 1.9.1 elimination
 - 1.9.2 substitution
 - 1.9.3 redesign
 - 1.9.4 isolation
 - 1.9.5 automation
- 1.10 identify and describe employer administrative controls that limit hazards to the lowest level possible, including:
 - 1.10.1 safe work practices
 - 1.10.2 job procedures, policies and rules
 - 1.10.3 work/rest schedules to reduce exposure
 - 1.10.4 limiting hours of work
 - 1.10.5 scheduling hazardous work during non-peak times
 - 1.10.6 using optional methods
- 1.11 describe the responsibilities of employees and employers to apply emergency procedures, including:
 - 1.11.1 emergency response plans
 - 1.11.2 first aid
- 1.12 describe positive tradesperson attitudes with respect to legal responsibilities for all workers, including:
 - 1.12.1 housekeeping
 - 1.12.2 lighting
 - 1.12.3 personal protective equipment (PPE)
 - 1.12.4 emergency procedures
- 1.13 describe the roles and responsibilities of employers and employees with respect to the selection and use of personal protective equipment (PPE), including:
 - 1.13.1 eye protection; e.g., class 1 (spectacles), class 2 (goggles), class 3 (welding helmets), class 4 (welding hand shields), class 5 (hoods), class 6 (face shields), class 7 (respirator face pieces)
 - 1.13.2 flame resistant clothing
 - 1.13.3 foot protection; e.g., category 1, 2 or 3 footwear requirements
 - 1.13.4 head protection; e.g., class G (general), class E (electrical), class C (conducting)
 - 1.13.5 hearing protection; e.g., earplugs or earmuffs
 - 1.13.6 life jackets and personal flotation devices (PFDs)
 - 1.13.7 limb and body protection
 - 1.13.8 respiratory protective equipment; e.g., particulate filters; chemical cartridges or canisters; airline respirators, hoods, helmets and suits; self-contained breathing apparatus (SCBA)
 - 1.13.9 a combination of any of the above

2. describe the use of personal protective equipment (PPE) and safe practices for climbing, lifting, rigging and hoisting in the landscape gardener apprenticeship trade

- 2.1 select, use and maintain specialized PPE and materials for climbing, lifting and loading, including:
 - 2.1.1 full body harness
 - 2.1.2 body belt
 - 2.1.3 ladders
 - 2.1.4 scaffold systems
 - 2.1.5 lifting and moving equipment
 - 2.1.6 PPE for lifting
 - 2.1.7 materials handling equipment; e.g., forklift, four-wheel dolly, chain hoist, overhead crane
- 2.2 describe manual lifting procedures, including correct body mechanics, considering:
 - 2.2.1 back safety
 - 2.2.2 general procedure for lifting
 - 2.2.3 employer and employee preventive actions to avoid back injuries
- 2.3 describe rigging hardware and the safe work load associated with:
 - 2.3.1 wire rope slings
 - 2.3.2 synthetic fibre web slings
 - 2.3.3 chain slings
 - 2.3.4 rigging hardware inspection
 - 2.3.5 sling angle on load rigging
- 2.4 select the correct equipment for rigging typical loads, including:
 - 2.4.1 eye bolts
 - 2.4.2 shackles
 - 2.4.3 rings and links
 - 2.4.4 hooks
 - 2.4.5 swivels
 - 2.4.6 spreader bars and equalization beams
 - 2.4.7 blocks
 - 2.4.8 sheaves
 - 2.4.9 turnbuckles
- 2.5 describe hoisting and load-moving procedures
- 2.6 explain the most commonly used sling configurations to connect a load to a hook, including:
 - 2.6.1 vertical hitch
 - 2.6.2 bridle hitch
 - 2.6.3 single and double basket hitch
 - 2.6.4 wrap hitch
 - 2.6.5 single and double choker hitch
- 2.7 demonstrate the standard movement signals a signaler is required to know to signal a crane operator, including:
 - 2.7.1 hoist and lower load
 - 2.7.2 raise and lower boom
 - 2.7.3 swing boom
 - 2.7.4 stop
 - 2.7.5 emergency stop
 - 2.7.6 dog everything

3. describe the safety practices for hazardous materials and fire protection in the landscape gardener apprenticeship trade

- 3.1 describe the roles, responsibilities, features and practices related to the Workplace Hazardous Materials Information System (WHMIS) program, including:
 - 3.1.1 suppliers', employers' and employees' responsibilities
 - 3.1.2 WHMIS classifications
 - 3.1.3 health effects from exposure to chemicals
- 3.2 describe the three key elements of WHMIS, including:
 - 3.2.1 worker education
 - 3.2.2 supplier and workplace product labelling
 - 3.2.3 material safety data sheets
- 3.3 describe handling, storage and transportation procedures when dealing with hazardous material, including:
 - 3.3.1 handling, storing and transporting flammable liquids
 - 3.3.2 handling, storing and transporting compressed gas
 - 3.3.3 storing incompatible materials
- 3.4 describe safe venting procedures when working with hazardous materials, including:
 - 3.4.1 mechanical general ventilation
 - 3.4.2 local ventilation
 - 3.4.3 portable smoke extractor
 - 3.4.4 working in a confined space
- 3.5 describe fire hazards, classes, procedures and equipment related to fire protection, including:
 - 3.5.1 elements of a fire
 - 3.5.2 classes of fires
 - 3.5.3 fire extinguisher labels
 - 3.5.4 extinguishing small fires
 - 3.5.5 the PASS method

4. demonstrate communication skills and workshop safety as they pertain to occupational health and safety standards

- 4.1 use various types of communication to provide trade-related information, employing standard terms for components and operations, including:
 - 4.1.1 personal appearance
 - 4.1.2 business appearance
 - 4.1.3 suppliers and sales representatives
 - 4.1.4 customers
 - 4.1.5 tradespeople
- 4.2 identify key areas of responsibility that an employee has in regards to shop and trade safety, including:
 - 4.2.1 housekeeping
 - 4.2.2 waste containers
 - 4.2.3 power tools and rotating machinery
 - 4.2.4 compressed air
 - 4.2.5 exhaust gases
 - 4.2.6 control of carbon monoxide (CO)
 - 4.2.7 hazardous materials, dangerous goods and controlled products
- 4.3 explain the correct use of fire extinguishers and explain fire prevention techniques

- 5. describe the role of apprenticeship within the landscape gardener trade**
 - 5.1 discuss the obligations and responsibilities of apprentices on the job and in technical training
 - 5.2 outline the scope of the trade
- 6. demonstrate an understanding of the landscape gardener apprenticeship trade and of apprenticeship opportunities that exist by creating a personal career portfolio**
 - 6.1 demonstrate an understanding of the landscape gardener apprenticeship trade and related job opportunities
 - 6.2 describe what it means to be an apprentice and describe requirements for the employee and employer
 - 6.3 refine and present a personal career portfolio, showing evidence of strengths and competencies, including:
 - 6.3.1 application completion
 - 6.3.2 cover letter
 - 6.3.3 résumé with references
 - 6.4 demonstrate knowledge of workplace requirements, rights and responsibilities and relate this knowledge to personal career/employment expectations
 - 6.5 outline the educational requirements to move into the landscape gardener apprenticeship trade and:
 - 6.5.1 conduct successful employment searches
 - 6.5.2 communicate in the language in which business is conducted
 - 6.5.3 prepare a personal employment search portfolio
 - 6.5.4 use technologies, tools and information systems appropriately for job preparation
- 7. demonstrate basic competencies**
 - 7.1 demonstrate fundamental skills to:
 - 7.1.1 communicate
 - 7.1.2 manage information
 - 7.1.3 use numbers
 - 7.1.4 think and solve problems
 - 7.2 demonstrate personal management skills to:
 - 7.2.1 demonstrate positive attitudes and behaviours
 - 7.2.2 be responsible
 - 7.2.3 be adaptable
 - 7.2.4 learn continuously
 - 7.2.5 work safely
 - 7.3 demonstrate teamwork skills to:
 - 7.3.1 work with others
 - 7.3.2 participate in projects and tasks
- 8. create a transitional strategy to accommodate personal changes and build personal values**
 - 8.1 identify short-term and long-term goals
 - 8.2 identify steps to achieve goals