



Module 3

SAQA ID: 264185 Apply pest control practices in ornamental plant production and landscaping

SAQA ID: 264191 Demonstrate an understanding of a flowering plant's reproductive cycle

SAQA ID: 264184 Identify common ornamental plants

SAQA ID: 264177 Identify the different organisms of the plant kingdom

SAQA ID: 264179 Identify the various soil types and their uses in plant propagation and landscaping

Module Credit Total: 27

ASSESSMENT GUIDE

Assessor Name: _____

Welcome to the Assessment Guide!

This document aims to provide the Assessor and Facilitator with guidance towards the assessment process / evidence / competencies needed for the achievement of the outcomes in this module.

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Module 3: Unit Standard Cluster Information

SAQA	Unit Standard Title	Level	Credits
264185	Apply pest control practices in ornamental plant production and landscaping	2	6
264191	Demonstrate an understanding of a flowering plant's reproductive cycle	2	5
264184	Identify common ornamental plants	2	8
264177	Identify the different organisms of the plant kingdom	2	4
264179	Identify the various soil types and their uses in plant propagation and landscaping	2	4

Instructions & Memorandum of Assessment

Section 1:

1.1 Classroom: Formative Knowledge Questionnaire

These knowledge based questions will be based on the outcomes and content of the classroom training session. The learner is required answer all the questions provided as this will also form part of their portfolio of evidence.

1.2 Classroom: Practical Assessment Activities and Assignments

These activities will be completed during the classroom or facilitation session and can be found in the learning material.

Section 2:

2.1 Observational Assessment and Workplace Assignments

To be completed in the workplace by the facilitator and / or assessor based on the learner's performance at the end of the course.

2.2 Summative Knowledge Assessment

Learner to complete the knowledge assessment by answering all the questions provided in filled giving examples where asked.

2.3 Personal Narrative

The personal narrative requires the learner to reflect on the requirements of the reflexive competence required in the application of the learning.

2.4 Witness Testimony

The witness testimony consists of a testimonial based on the learner's performance as observed / reviewed by your Supervisor / Manager in the workplace.

2.5 Logbook

Containing the activity records as required by the programme and completed by the learner.

LEARNER ASSESSMENT PLAN

Please tick next to the unit standards you are being assessed against.

Unit code	UNIT STANDARD TITLES	NQF level	Credits	✓
264185	Apply pest control practices in ornamental plant production and landscaping	2	6	
264191	Demonstrate an understanding of a flowering plant's reproductive cycle	2	5	
264184	Identify common ornamental plants	2	8	
264177	Identify the different organisms of the plant kingdom	2	4	
264179	Identify the various soil types and their uses in plant propagation and landscaping	2	4	

Activity	Evidence of activity will be found where?	Place & planned date of activity	Date Completed
Training	Classroom training registers	Training Provider Date:	
Self assessment	Assessment contract signed & dated	Learner file Date:	
Assessment contract	Assessment contract signed & dated	Learner file Date:	
Initial meeting	Assessor briefing checklist	Learner file Date:	
Unit Standard No	Assessment contract & assessment plan	Learner file Date:	
Formative Assessment	Assessment instruments	Learner file Date:	
Summative Assessment	Assessment instruments	Learner file Date:	
Other Evidence	Research portfolio (if applicable)	Learner file Date:	
Feedback	Feedback Report	Learner file Date:	
Moderation	Moderators report	Learner file Date:	
Judgement	Assessor Summary Report / Moderator report	Learner file Date:	
1 st Reassessment	Assessors summary report / instruments	Learner file Date:	
2 nd Reassessment	Assessors summary report / instruments	Learner file Date:	

Special arrangements for assessment

Place
Language
Resources
Barriers

People to be involved with assessment

Learner:	Manager:
Trainer:	Mentor / Coach:
Assessor:	Moderator:

Next steps for learning

Resources required for this assessment

Guidelines to the learner:

Learners Name: _____

Learner's signature: _____

Date: _____

Assessors Name: _____

Assessor's signature: _____

Date: _____

ASSESSMENT APPEALS PROCEDURE

1. A learner has the right to appeal under the following circumstances
 - If the laid down assessment procedures were not followed during assessments
 - If not all evidence available was taken into account during the assessment
 - The assessor was not a subject matter expert or did not have a subject matter expert during the assessment process
 - The assessor did not assess according to the performance criteria and range statement stipulated in the unit standard
 - Not all the range items were available for assessment
2. A learner bringing an appeal against a decision of the assessment will lodge such an appeal with the assessor and the internal moderator within 2 days of the assessment feedback session.
3. A learner bringing an appeal should complete the "Learner's Notice of Assessment Appeal" form before the Appeal Hearing. The form should be handed to the internal moderator or a representative of the SETA.
4. Should the internal moderator re-affirm the assessor's decision, the learner may appeal to the external verifier within 2 days after the initial moderator's feedback session. The external verifier's decision will be final. Should the external verifier re-affirm the assessors' decision, the cost for re-evaluation will be upon the learner. Should the verifier's decision differ from the assessor's decision, the cost for re-evaluation will be borne by the assessor.

ASSESSMENT APPEAL APPLICATION FORM

LEARNER'S NOTICE OF ASSESSMENT APPEAL

TO: The Internal Moderator

A meeting with the internal moderator is hereby requested to discuss the outcome of my assessment.

Internal moderator name _____

Date of submission: _____

Name of employee assessed: _____

Name of Assessor: _____

Date of feedback session: _____

Grounds for Appeal

No	Tick the applicable ground(s) for appeal	Tick
1	The assessment did not follow the laid down procedure	
2	Not all evidence available was taken into account during the assessment	
3	The assessor was not a subject matter expert nor was a subject matter expert present during the assessment process	
4	The assessment was not according to the performance criteria and the range statement stipulated in the unit standard	
5	Not all the range items were available for the assessment	

Reasons for Appeal

No	Please give detailed reasons for the choice(s) above
1	
2	
3	
4	
5	

Learner's signature: _____

Date: _____

Employee witness: _____

Date: _____

PRE-ASSESSMENT MEETING CHECKLIST

Points Assessor must cover in the initial meeting with the learner - Please tick

Item	Points to be covered	Tick
1	Welcome the candidate and put them at ease	
2	Explain the purpose of the meeting (why you are there and how long the meeting will take)	
3	Explain the <ul style="list-style-type: none"> ▪ NQF ▪ Credits ▪ Certification process ▪ Learning pathways 	
4	Explain <ul style="list-style-type: none"> ▪ Who is involved in the assessment and their role (learners, coach, assessors, managers, moderators) ▪ Principles of assessment (fairness, confidentiality, validity, sufficiency) 	
5	Explain the assessment process? <ul style="list-style-type: none"> ▪ Check learner readiness for assessment (logbook / self assessment) ▪ Assessment contract to be completed ▪ Preparation of learner (this meeting) ▪ The assessment (observation and knowledge questionnaire) ▪ Judgement of the evidence ▪ Outcome of assessment (competent, not yet competent, need further evidence) 	
6	Give Learner copies of the following documentation and explain each document <ul style="list-style-type: none"> ▪ The Assessment Guide which includes <ul style="list-style-type: none"> ○ The relevant unit standard (s) ○ Assessment contract ○ Assessment plan ○ Observation checklist ○ Knowledge checklist 	
7	Discuss the assessment plan (complete the assessment plan document) <ul style="list-style-type: none"> ▪ Allow the learner to participate in the decisions made ▪ Agree on dates, time and venue for the assessment and feedback ▪ Agree on evidence the learner can submit ▪ Agree and explain the assessment methods ▪ Identify and discuss special assessment needs of the candidate ▪ Identify and eliminate unfair barriers (language, disability etc) ▪ Discuss and agree on witness requirements 	
8	Tell the candidate his/her rights and responsibilities, the assessment procedures and policies <ul style="list-style-type: none"> ▪ How many times they may be assessed ▪ Appeals process / procedure ▪ Reassessment policy 	
9	Ensure the assessment environment is appropriate or make special arrangements	
10	Discuss moderation	
11	Allow the learner opportunity to clarify any items discussed	

Learner declaration of acceptance of assessment instruments and relevant documentation: Date:	
Learners Name:	Signature
Assessors Name:	Signature:

Assessment Strategy		
Learner Profile:	Learners working towards this standard are working within a Horticultural environment.	
Entry Requirements	<ul style="list-style-type: none"> ▪ Numeracy at NQF Level 1 or equivalent. ▪ English (verbal and written communication skills) at NQF Level 1 or equivalent. ▪ Computer operating skills at NQF Level 2 or equivalent. 	
Check Entry Requirements	Learners to submit proof of entry requirements, i.e. school certificates / reports. Learners who cannot provide proof of entry level requirements will be undergo testing at accredited assessment centres. Information will be provided as required.	
Purpose of Assessment	The purpose of this assessment is to determine and recognise learner competence against the unit standard “Apply the principles and concepts of emotional intelligence to the management of self and others”.	
Assessment Approach	Learners will undergo formative assessment and summative assessment. Evidence gathered during formative assessment will be used towards summative assessment. Formative Assessment will include activities. Summative Assessment will contain and Workplace Assignment, knowledge questionnaire and the completion of a personal narrative.	
Assessment Conditions	Formative Assessment: Classroom or boardroom.	
Learner Needs	<ul style="list-style-type: none"> ▪ Special needs are identified through the learner information form completed during enrolment and verified during the Assessment Preparation Interview which takes place at the end of the learning intervention. ▪ Assessment should be adjusted based on special needs requests, provided that the fairness, validity and reliability of the assessment are not compromised. Special needs include, but are not limited to: Hearing impairment, Physical impairment, Learning disabilities, Visual impairment, Speech impairment and Medical conditions 	
Learner Support	<ul style="list-style-type: none"> <li style="width: 50%;">▪ Learning facilitation <li style="width: 50%;">▪ Mentoring & Coaching (provided by supervisor) <li style="width: 50%;">▪ Facilitator / Assessor guidance and support with completion of Summative Assessment <li style="width: 50%;">▪ Facilitator guidance and support with workshop activities 	
Resources & Equipment	<ul style="list-style-type: none"> <li style="width: 25%;">▪ Training Venue <li style="width: 25%;">▪ Data Projector <li style="width: 25%;">▪ Flipchart paper <li style="width: 25%;">▪ Laptop <li style="width: 25%;">▪ PowerPoint Slides <li style="width: 25%;">▪ Flipchart stand <li style="width: 25%;">▪ Coloured Pens <li style="width: 25%;">▪ Pre-designed assessment instruments 	
Assessment Tools in relation to VARCS	Validity	The assessment tools cover all of the specific outcomes, assessment criterion, embedded knowledge (where applicable) and critical cross field outcomes of the unit standard. The tools measure the requirements of this unit standard.
	Authenticity	The learners are required to sign a declaration sheet that states that they have submitted their own work. The assessor checks that this sheet is submitted in the learner’s portfolio of evidence. In line with the principles of assessment, the assessor will ensure that they are satisfied that work being assessed belongs to the learner in question.
	Reliability	Consistent results will be obtained with different assessors by making use of these assessment tools.
	Current	The evidence presented will be current – not older than 3 years.
	Sufficient	The assessment tools selected for this assessment provides enough evidence to show that the learners have met the criteria and specific outcomes required to be found competent against this unit standard. This performance can be repeated consistently with the same results.

The Assessment Process		
1	Plan and Prepare for Assessment	Documents
	a) Plan & Prepare self for Assessment <ul style="list-style-type: none"> ▪ Understand all the requirements of the assessment in terms of evidence required to prove competence. ▪ Identify logistical arrangements that have to be made ▪ Familiarise self with assessment instruments and tools ▪ Identify any resources required for assessment ▪ Ensure that you are familiar with the Assessment, Moderation, RPL and Appeals policy. b) Plan & Prepare Learner for Assessment <ul style="list-style-type: none"> ▪ Discuss all aspects mentioned on the <i>Assessment Preparation Sheet</i> OR ▪ Provide the learner with a <i>letter</i> detailing all the specifications covered in the Assessment Preparation Sheet ▪ Complete the Assessment Plan with the learner. 	<input type="checkbox"/> Assessment Guide <input type="checkbox"/> Unit Standard <input type="checkbox"/> Assessment Policy <input type="checkbox"/> Moderation Policy <input type="checkbox"/> RPL Policy <input type="checkbox"/> Appeals and Disputes Policy <input type="checkbox"/> Assessment Preparation Sheet <input type="checkbox"/> Assessment Plan <input type="checkbox"/> Assessment Pack (Assessment Instruments and Tools)
2	Conduct Assessment	Documents
	a) Assist in Evidence Collection <ul style="list-style-type: none"> ▪ Assist in the Administration of the Formative Assessments b) Assessing Evidence <ul style="list-style-type: none"> ▪ Review evidence submitted using <i>model answers / memorandum</i> ▪ Advise learners of outstanding evidence ▪ Record the findings and feedback using the <i>Assessment Report</i> ▪ Inform learner of outstanding evidence via phone, fax or e-mail ▪ Record all communication with learners ▪ Record final judgement using the <i>Assessment Report</i> 	<input type="checkbox"/> Learner's Portfolio of Evidence <input type="checkbox"/> Assessment Report
3	Review Assessment	Documents
	a) Assessor to complete review questionnaire b) Learner to complete review questionnaire	<input type="checkbox"/> Assessor's Assessment Review <input type="checkbox"/> Learner's Assessment Review
4	Record Keeping and Reporting	Documents
	a) Based on the Assessment Report an <i>Assessment Record</i> will be completed and sent to the learner. b) Assessment Results to be recorded on Learner Database by Administrator c) Submit Portfolio of Evidence and Reports for Moderation	<input type="checkbox"/> Assessment Report <input type="checkbox"/> Assessment Record

Evidence Grid

Module	Module 3	Unit Standards	264185	264191	264184	264177
Total Notional Hours	Notional Hours: 270 Total Credits: 27		264179			

Unit Standard Name	Apply pest control practices in ornamental plant production and landscaping	SAQA ID	264185	NQF Level	2	Credits	6
Specific Outcome 1:	Apply health and safety practices when conducting pest control.						
SO1	Assessment Criteria	Evidence Guide					
AC1	The personal protective clothing and equipment that should be used when working with chemical control substances are described in accordance with the company's procedures.	SA – Knowledge Assessment					
AC2	The items of PPE necessary for the application of chemical control substances in an open area or landscape are described in accordance with the company's procedures.	SA – Knowledge Assessment					
AC3	The reasons why items of PPC must be washed after chemical pest control has been used are explained in terms of company's procedures.	SA – Knowledge Assessment					
AC4	The necessity of covering any open sores prior to working with chemical control substances is explained in relation to the possible poisoning of the worker.	SA – Knowledge Assessment					
AC5	The reasons why no smoking, drinking or eating is allowed whilst working with hazardous chemicals are explained in terms of the possible danger of the hand to mouth transference of these chemicals.	SA – Knowledge Assessment					
AC6	The safe handling procedures when using hazardous chemicals are demonstrated in accordance with the company's procedures.	SA- Observational Assessment					
AC7	The importance of adhering to the manufacturer's instructions on the data sheets of control chemicals is explained in terms of the consequences that the incorrect application of these can have on the plants and the environment.	SA – Knowledge Assessment					
AC8	The reasons why empty hazardous chemical containers must be disposed of and may not be used for any other purpose are explained in respect of the possible danger that the residue in these containers may pose to the plants and workers.	SA – Knowledge Assessment					
AC9	The necessity of erecting the appropriate warning signs, before hazardous chemicals are applied is explained in relation to the prevention of a possible poisoning of the public and fellow workers.	SA – Knowledge Assessment					
AC10	The importance of determining the wind's direction and the reasons why an operator should work into the wind are explained in terms of the possibility of poisoning.	SA – Knowledge Assessment					
AC11	The reasons why hands, arms and any other body parts must not be exposed when applying hazardous chemicals is explained in terms of the possibility of infection and/or poisoning.	SA – Knowledge Assessment					
AC12	The procedures for the safe storage of hazardous chemicals are demonstrated in accordance with the company's procedures.	SA- Observational Assessment					

Specific Outcome 2:		Describe the correct use and maintenance of pest control applicators and equipment.
SO2	Assessment Criteria	Evidence Guide
AC1	The procedures for "drenching" an area using a watering can are demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC2	The reasons for the specific marking of all pest control applicators are explained in terms of the danger that the chemical residue will have to the workers, plants and environment.	SA – Knowledge Assessment
AC3	The particular function of a pad applicator is explained and the correct method of usage is demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC4	The use of aerosol sprays are described in terms of the types of control chemicals that are available and the can's operation is demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC5	The use of a hand-held spray canister is described in terms of the types of control chemicals that can be applied and its operation is demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC6	The use of a knapsack spray is described in terms of the types of control chemicals that can be applied and its operation is demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC7	The importance of following the mixing instructions is explained and the correct measurement of various quantities for dilution is demonstrated in accordance with the company's procedures.	SA – Knowledge Assessment
AC8	The various spray nozzles are identified and their particular uses are described in terms of the droplet size and spray pattern that is required.	SA- Observational Assessment
AC9	The methods of cleaning various spray equipment and other chemical applicators are demonstrated in accordance with the company's procedures.	SA- Observational Assessment
AC10	The importance of conducting preventative maintenance checks on the chemical application equipment is explained in terms of ensuring their correct functioning and the specific components that require regular replacement are identified.	SA – Knowledge Assessment
Specific Outcome 3:		Identify and explain the hazards that chemical control substances pose to the environment.
SO3	Assessment Criteria	Evidence Guide
AC1	The need to minimise the impact that control chemicals have on beneficial insects is explained in terms of the roles they play in ensuring the correct functioning of the ecosystem.	SA – Knowledge Assessment
AC2	The importance of identifying the residual levels and efficacy periods of control substances is explained in terms of ensuring that toxic levels are not reached.	SA – Knowledge Assessment
AC3	The necessity of following the dilution ratios and application rates is explained in terms of the danger that the excess chemicals will have on the environment.	SA – Knowledge Assessment
AC4	The danger when spraying in windy conditions is explained in relation to the damage that may be inflicted to trees and neighbouring plants.	SA – Knowledge Assessment
AC5	The function of spray screens is explained in terms of the protection that they afford to ornamental plants and foliage and their usage is demonstrated in accordance with the company's procedures.	SA- Observational Assessment

AC6	The danger that "runoff" water from hard surfaces that have been treated with broad spectrum herbicides is explained in terms of the damage that may be inflicted to neighbouring plants.	SA – Knowledge Assessment
Specific Outcome 4: Demonstrate an understanding of the specific chemical control groups and their modes of combating pests.		
SO4	Assessment Criteria	Evidence Guide
AC1	The control objectives of using contact insecticides are explained in terms of the specific functions for which they have been formulated and the methods of application are demonstrated in accordance with the company's procedures.	SA – Knowledge Assessment
AC2	The control objectives of using systemic insecticides are explained in terms of the specific functions for which they have been formulated and the methods of application are demonstrated in accordance with the company's procedures.	SA – Knowledge Assessment
AC3	The control objectives of using stomach insecticides are explained in terms of the specific functions for which they have been formulated and the methods of application are demonstrated in accordance with the company's procedures.	SA – Knowledge Assessment
AC4	The various forms of chemical fungicides used in horticulture are described and the methods of applying these are demonstrated in accordance with the company's procedures.	SA – Knowledge Assessment
AC5	The possible consequences, when an incorrect fungicidal application rate has been used are described in terms of the possible damage that is caused (over dosage) or ineffectual control (under dosage).	SA – Knowledge Assessment
AC6	The various types of herbicides used in horticulture are described and an explanation of their specific control functions is given.	SA – Knowledge Assessment
AC7	The function of fumigants is explained in terms of their control spectrum and the instances where this control practice is required.	SA – Knowledge Assessment
AC8	The function of chemical cocktails is explained in terms of their broad control spectrum described and an example of a typical usage is given.	SA – Knowledge Assessment

Essential Embedded Knowledge		Covered
1.	Chemical Control Groups Chemical control substances hazards Pest control applicators and equipment maintenance Pest control health and safety practices	FA - Knowledge Assessment

Critical Cross-field Outcomes (CCFO)		Covered
1.	UNIT STANDARD CCFO IDENTIFYING The learner is able to identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made by: Applying knowledge of the protection that must be given to neighbouring plants when using herbicides.	FA - Knowledge Assessment SA – Workplace Assignment Personal Narrative

UNIT STANDARD CCFO WORKING

The learner is able to work effectively with others as a member of a team, group, organisation or communities by:
Participating with others in the maintenance of the chemical store.

UNIT STANDARD CCFO ORGANISING

The learner is able to organise and manage oneself and one's activities responsibly and effectively by:
Following the dilution and mixing procedures before applying the control chemicals.

UNIT STANDARD CCFO COLLECTING

The learner is able to collect, organise and critically evaluate information by:
Adhering to the data sheet for the various control chemicals.

UNIT STANDARD CCFO COMMUNICATING

The learner is able to communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation by:
Relaying information regarding the wind conditions and when application of the control chemicals may commence.

UNIT STANDARD CCFO SCIENCE

The learner is able to use science and technology effectively and critically, showing responsibility towards the environment and health of others by:
Understanding the dangers associated with the use of hazardous chemicals.
Recognising the climatic conditions that will pose a danger to others.

UNIT STANDARD CCFO DEMONSTRATING

The learner is able to demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation:
Evident in all Specific Outcomes.

UNIT STANDARD CCFO CONTRIBUTING

The learner is able to contribute to the full personal development of themselves and the social and economic development of the society at large:
Evident in all Specific Outcomes.

Unit Standard Name	Demonstrate an understanding of a flowering plant's reproductive cycle	SAQA ID	264191	NQF Level	2	Credits	5
Specific Outcome 1:	Explain the role that pollination plays in the reproductive process of a flowering plant and the functions of the various parts of a flower.						
SO1	Assessment Criteria	Evidence Guide					
AC1	Pollination is explained in terms of the role that it plays in the reproductive process of flowering plants.	SA – Knowledge Assessment					
AC2	The various parts of the flower that are involved in pollination are described in accordance with their contribution in the transference of pollen.	SA – Knowledge Assessment					
AC3	The different agents that facilitate pollination are described in terms of the methods in which each assists the process.	SA – Knowledge Assessment					
AC4	The different types of pollination are described in accordance with the manner in which pollination is achieved.	SA – Knowledge Assessment					
AC5	The different modifications involved in flower pollination are explained in terms of the role that outside agents play in assisting pollination.	SA – Knowledge Assessment					
Specific Outcome 2:	Describe the fertilization process in flowering plants.						
SO2	Assessment Criteria	Evidence Guide					
AC1	Fertilisation is explained in terms of the role that it plays in the reproductive process of flowering plants.	SA – Knowledge Assessment					
AC2	The functions that fertilisation performs are explained in terms of the results of pollination and the process for the development of seeds.	SA – Knowledge Assessment					
AC3	The role that fruit performs is described in terms of its functions for the dispersal and establishment of a new plant.	SA – Knowledge Assessment					
AC4	Examples of various fruit types are described in accordance with the various methods of achieving seed dispersal.	SA – Knowledge Assessment					
Specific Outcome 3:	Describe the types of seeds that flowering plants produce.						
SO3	Assessment Criteria	Evidence Guide					
AC1	The components of a seed are identified and a description of the role that each performs in the establishment of a new plant is given according to theory.	SA – Knowledge Assessment					
AC2	The various parts of the embryo are identified and a description of the role that each has in the establishment of a new plant is given according to theory.	SA- Observational Assessment					
AC3	The types of cotyledons are described in terms of their differing forms and characteristics.	SA – Knowledge Assessment					
Specific Outcome 4:	A plant's need for seed dispersal is describe and the various methods of achieving this explained according to theory.						
SO4	Assessment Criteria	Evidence Guide					
AC1	The objectives of seed dispersal are explained in accordance with the reasons why plants need to broadcast their seeds.	SA – Knowledge Assessment					
AC2	Seed dispersal is explained in terms of the methods that are used to transport the seeds.	SA – Knowledge Assessment					

Specific Outcome 5:	Describe the process of seed germination and the environmental factors that are required.	
SO5	Assessment Criteria	Evidence Guide
AC1	The process of germination is explained in terms of the initiation of growth in the seed.	SA – Knowledge Assessment
AC2	The conditions for successful germination are explained in accordance with the environmental factors that are necessary to sustain the process.	SA – Knowledge Assessment
Specific Outcome 6:	The onset of growth from a seed is explained in terms of the factors that initiate the process and their contribution to the growth.	
SO5	Assessment Criteria	Evidence Guide
AC1	The process of radicle growth is explained in respect of its root development.	SA – Knowledge Assessment
AC2	Plumule growth is explained in respect of its resultant stem development.	SA – Knowledge Assessment
AC3	Sexual reproduction is explained in terms of the roles that the various structures of a flower perform.	SA – Knowledge Assessment

Essential Embedded Knowledge		Covered
1.	Seed growth process, requirements. Seed types Fertilization process Germination process Reproductive process	FA - Knowledge Assessment

Critical Cross-field Outcomes (CCFO)		Covered
1.	<p>UNIT STANDARD CCFO IDENTIFYING The learner is able to identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made by: Applying knowledge of the reproductive stages of a flowering plant to successfully propagate these.</p> <p>UNIT STANDARD CCFO ORGANISING The learner is able to organise and manage oneself and one's activities responsibly and effectively by: Preparing to hand pollinate the flowers for production.</p> <p>UNIT STANDARD CCFO COMMUNICATING The learner is able to communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation by: Participating with others in the treatment of seeds to ensure a good germination.</p>	<p>FA - Knowledge Assessment SA – Workplace Assignment Personal Narrative</p>

	<p>UNIT STANDARD CCFO SCIENCE The learner is able to use science and technology effectively and critically, showing responsibility towards the environment and health of others by: Utilising a knowledge of the reproductive cycle to successfully propagate ornamental plants.</p> <p>UNIT STANDARD CCFO DEMONSTRATING The learner is able to demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation: Evident in all Specific Outcomes.</p> <p>UNIT STANDARD CCFO CONTRIBUTING The learner is able to contribute to the full personal development of themselves and the social and economic development of the society at large: Evident in all Specific Outcomes.</p>	
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Unit Standard Name	Identify common ornamental plants	SAQA ID	264184	NQF Level	2	Credits	8
Specific Outcome 1:	Describe the characteristics and growth requirements of trees commonly found in the workplace.						
SO1	Assessment Criteria					Evidence Guide	
AC1	Ten distinctly different trees, commonly found in the workplace, are identified by genus and species or variety.					SA – Knowledge Assessment	
AC2	The particular form and growth habits of each tree are defined according to their diagnostic indicators.					SA – Knowledge Assessment	
AC3	The differences between deciduous and evergreen trees are described in terms of the distinctive features and dormancy habits.					SA – Knowledge Assessment	
AC4	The characteristic features that distinguish each tree are described in terms of the colour, size and shape of their leaves, flowers and fruit.					SA – Knowledge Assessment	
AC5	The particular needs of the trees, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.					SA – Knowledge Assessment	
AC6	The particular climatic requirements of the trees, when used in a typical landscape, are explained in the context of their frost tolerance, water requirements or drought resistance.					SA – Knowledge Assessment	
Specific Outcome 2:	Describe the characteristics and growth requirements of shrubs commonly found in the workplace.						
SO2	Assessment Criteria					Evidence Guide	
AC1	Fifteen distinctly different shrubs, commonly found in the workplace, are identified by genus and species or variety.					SA – Knowledge Assessment	
AC2	The diagnostic indicators of each shrub are used to define their particular form and growth habits.					SA- Observational Assessment	
AC3	The differences between deciduous and evergreen shrubs are described in terms of their distinctive features and dormancy habits.					SA – Knowledge Assessment	
AC4	The characteristic features that distinguish each shrub are described in terms of the colour, size and shape of their leaves, flowers and fruit.					SA – Knowledge Assessment	
AC5	The particular needs of the shrubs, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.					SA – Knowledge Assessment	
AC6	The particular climatic requirements of the shrubs, when used in a typical landscape, are explained in context of their frost tolerance, water requirements or drought resistance.					SA – Knowledge Assessment	
Specific Outcome 3:	Describe the characteristics and growth requirements of climbing plants commonly found in the workplace.						
SO3	Assessment Criteria					Evidence Guide	
AC1	Five distinctly different climbing plants, commonly found in the workplace, are identified by genus and species or variety.					SA- Observational Assessment	
AC2	The diagnostic indicators of each climbing plant are used to define their particular form and growth habits.					SA- Observational Assessment	
AC3	The differences between deciduous and evergreen climbing plants are described in terms of their distinctive features and dormancy habits.					SA – Knowledge Assessment	
AC4	The characteristic features that distinguish each climbing plant are described in terms of the colour, size and shape of					SA – Knowledge Assessment	

	their leaves and flowers.	
AC5	The particular needs of the climbing plants, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.	SA – Knowledge Assessment
AC6	The particular climatic requirements of the climbing plants, when used in a typical landscape, are explained in context of their frost tolerance, water requirements or drought resistance.	SA – Knowledge Assessment
Specific Outcome 4:	Describe the characteristics and growth requirements of ground covers commonly found in the workplace.	
SO4	Assessment Criteria	Evidence Guide
AC1	Five distinctly different ground covers, commonly found in the workplace, are identified by genus and species or variety.	SA – Knowledge Assessment
AC2	The diagnostic indicators of each ground cover are used to define their particular form and growth habits.	SA- Observational Assessment
AC3	The differences between deciduous and evergreen ground covers are described in terms of their distinctive features and dormancy habits.	SA – Knowledge Assessment
AC4	The characteristic features that distinguish each ground cover are described in terms of the colour, size and shape of their leaves and flowers.	SA – Knowledge Assessment
AC5	The particular needs of the ground covers, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.	SA – Knowledge Assessment
AC6	The particular climatic requirements of the ground covers, when used in a typical landscape, are explained in context of their frost tolerance, water requirements or drought resistance.	SA – Knowledge Assessment
Specific Outcome 5:	Describe the characteristics and growth requirements of annual bedding plants commonly found in the workplace.	
SO5	Assessment Criteria	Evidence Guide
AC1	Ten distinctly different annual bedding plants, commonly found in the workplace, are identified by genus and species or variety.	SA – Knowledge Assessment
AC2	The diagnostic indicators of each annual bedding plant are used to define their particular form and growth habits.	SA- Observational Assessment
AC3	The characteristic features that distinguish each annual bedding plant are described in terms of the colour, size and shape of their leaves and flowers.	SA – Knowledge Assessment
AC4	The particular needs of the annual bedding plants, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.	SA – Knowledge Assessment
AC5	The particular climatic requirements of the annual bedding plants, when used in a typical landscape, are explained in context of their frost tolerance, water requirements or drought resistance.	SA – Knowledge Assessment
Specific Outcome 6:	Describe the characteristics and growth requirements of herbaceous plants commonly found in the workplace.	
SO6	Assessment Criteria	Evidence Guide
AC1	Five distinctly different herbaceous plants, commonly found in the workplace, are identified by genus and species or variety.	SA – Knowledge Assessment
AC2	The diagnostic indicators of each herbaceous plant are used to define their particular form and growth habits.	SA- Observational Assessment

AC3	The differences between the various herbaceous plants are described in terms of the seasons in which they flower and their dormancy habits.	SA – Knowledge Assessment
AC4	The characteristic features that distinguish each herbaceous plant are described in terms of the colour, size and shape of their leaves and flowers.	SA – Knowledge Assessment
AC5	The particular needs of the herbaceous plants, when used in a typical landscape, are explained in context of their preferred soil types and drainage requirements.	SA – Knowledge Assessment
AC6	The particular climatic requirements of the herbaceous plants, when used in a typical landscape, are explained in context of their frost tolerance, water requirements or drought resistance.	SA – Knowledge Assessment

Essential Embedded Knowledge		Covered
1.	Characteristics and growth requirements of trees Characteristics and growth requirements of herbaceous plants Characteristics and growth requirements of ground covers Characteristics and growth requirements of climbing plants	FA - Knowledge Assessment

Critical Cross-field Outcomes (CCFO)		Covered
1.	<p>UNIT STANDARD CCFO IDENTIFYING The learner is able to identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made by: Applying knowledge of common plants to successfully establish and maintain these in the landscape.</p> <p>UNIT STANDARD CCFO WORKING The learner is able to work effectively with others as a member of a team, group, organisation or communities by: Participate with others in the planting and maintaining of common plants.</p> <p>UNIT STANDARD CCFO ORGANISING The learner is able to organise and manage oneself and one's activities responsibly and effectively by: Ensuring that the water requirements or drought resistance of bedding plants are considered prior to planting.</p> <p>UNIT STANDARD CCFO COLLECTING The learner is able to collect, organise and critically evaluate information by: Researching the particular needs that plants may require prior to planting, in order that these requirements may be met.</p> <p>UNIT STANDARD CCFO COMMUNICATING</p>	FA - Knowledge Assessment SA – Workplace Assignment Personal Narrative

<p>The learner is able to communicate effectively using Visual, Mathematical and/or Language Skills in the modes of oral and/or written presentation by: Reporting on the suitability of the existing soil conditions prior to planting.</p> <p>UNIT STANDARD CCFO SCIENCE The learner is able to use science and technology effectively and critically, showing responsibility towards the environment and health of others by: Determining the water requirements or drought resistance of the plants before these are placed in the landscape.</p> <p>UNIT STANDARD CCFO DEMONSTRATING The learner is able to demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation: Evident in all Specific Outcomes.</p> <p>UNIT STANDARD CCFO CONTRIBUTING The learner is able to contribute to the full personal development of themselves and the social and economic development of the society at large: Evident in all Specific Outcomes.</p>	
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Unit Standard Name	Identify the different organisms of the plant kingdom	SAQA ID	264177	NQF Level	2	Credits	4
Specific Outcome 1:	Describe the basic structure and function of fungi and the roles that they play in the environment.						
SO1	Assessment Criteria			Evidence Guide			
AC1	The factors that define and classify fungi are explained in accordance with their characteristics and food requirements.			SA – Knowledge Assessment			
AC2	Examples of common fungi are identified, including a basic description of their structure and the environments in which they are normally found.			SA- Observational Assessment			
AC3	Examples of harmful fungi are named and their roles are described in terms of the functions that they perform in ecosystems and food webs.			SA – Knowledge Assessment			
AC4	Examples of beneficial fungi are named and their roles are explained in terms of the functions that they perform in ecosystems and food webs.			SA – Knowledge Assessment			
AC5	The conditions in which fungi thrive are described in relation to their environmental requirements.			SA – Knowledge Assessment			
Specific Outcome 2:	Describe the basic structure and function of algae and the roles that they play in the ecosystem.						
SO2	Assessment Criteria			Evidence Guide			

AC1	The factors that define and classify algae are explained in accordance with their characteristics and general structure.	SA – Knowledge Assessment
AC2	Examples of commonly found algae are identified, including the typical habitats in which they occur.	SA – Knowledge Assessment
AC3	The role that algae play is explained in terms of the important contribution that they make in the ecosystem.	SA – Knowledge Assessment
Specific Outcome 3: Describe the basic structure and function of moss and the roles that they play in the environment.		
SO3	Assessment Criteria	Evidence Guide
AC1	The factors that define and classify moss are explained in accordance with their characteristics and structure.	SA – Knowledge Assessment
AC2	The ideal situations in which moss thrive are described in terms of their preferred environmental conditions.	SA – Knowledge Assessment
Specific Outcome 4: Describe the basic structure, function and reproduction of ferns.		
SO4	Assessment Criteria	Evidence Guide
AC1	The factors that define and classify ferns are explained in accordance with their characteristics and general structure.	SA – Knowledge Assessment
AC2	Examples of common ferns are identified, including the typical habitats in which they occur.	SA – Knowledge Assessment
AC3	The role that ferns play in the environment is explained in terms of the contributions that they make in the ecosystem.	SA – Knowledge Assessment
AC4	The reproduction of ferns is explained in accordance with the various methods that they employ.	SA – Knowledge Assessment
Specific Outcome 5: Describe the basic structure and function of gymnosperms and their methods of reproduction.		
SO5	Assessment Criteria	Evidence Guide
AC1	The factors that define and classify gymnosperms are explained in accordance with their characteristics and unique features.	SA – Knowledge Assessment
AC2	Examples of gymnosperms are identified, including the typical habitats in which they occur according to organisms theory.	SA – Knowledge Assessment
AC3	The role that gymnosperms play is explained in terms of the important contribution that they make in the ecosystem.	SA – Knowledge Assessment
AC4	The reproduction of gymnosperms is explained in terms of the various methods that they employ.	SA – Knowledge Assessment

Essential Embedded Knowledge		Covered
1.	Types of organism of the plant kingdom. Characteristics of the different organisms. Environmental conditions Reproductive methods used by the organisms.	FA - Knowledge Assessment

Critical Cross-field Outcomes (CCFO)		Covered
1.	UNIT STANDARD CCFO IDENTIFYING The learner is able to identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made by:	FA - Knowledge Assessment SA – Workplace Assignment Personal Narrative

<p>Applying knowledge of the environmental requirements of the various organisms prior to using them.</p> <p>UNIT STANDARD CCFO ORGANISING The learner is able to organise and manage oneself and one's activities responsibly and effectively by: Preparing the propagation media according to the individual organism's requirements.</p> <p>UNIT STANDARD CCFO COMMUNICATING The learner is able to communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation by: Participate with others in the preparation of suitable growing media.</p> <p>UNIT STANDARD CCFO SCIENCE The learner is able to use science and technology effectively and critically, showing responsibility towards the environment and health of others by: Utilise knowledge of the various harmful bacteria to prevent infestation and damage to ornamental plants.</p> <p>UNIT STANDARD CCFO DEMONSTRATING The learner is able to demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation: Evident in all Specific Outcomes.</p> <p>UNIT STANDARD CCFO CONTRIBUTING The learner is able to contribute to the full personal development of themselves and the social and economic development of the society at large: Evident in all Specific Outcomes.</p>	
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Unit Standard Name	Identify the various soil types and their uses in plant propagation and landscaping	SAQA ID	264179	NQF Level	2	Credits	4
Specific Outcome 1:	Describe the characteristics of topsoil and its importance for plant establishment and growth.						
SO1	Assessment Criteria				Evidence Guide		
AC1	The visible differences between topsoil and subsoil are described in terms of the darker colour of the organic residue in topsoil.				SA – Knowledge Assessment		
AC2	The physical differences between topsoil and subsoil are identified in accordance with the smoother texture of topsoil.				SA – Knowledge Assessment		
AC3	The formation of humus is explained in terms of the role that micro-organisms play in the decomposition of organic material.				SA – Knowledge Assessment		
AC4	The value of organic material in topsoil is explained in respect of the positive contribution that this has on the soil's water retention.				SA – Knowledge Assessment		
AC5	The value that topsoil has for the establishment and growth of plants is explained in respect of the nutrient content of the organics.				SA – Knowledge Assessment		
Specific Outcome 2:	Identify the main soil types and describe their major characteristics.						
SO2	Assessment Criteria				Evidence Guide		
AC1	The characteristics of sandy soils are described in respect of their physical and other distinguishing features.				SA – Knowledge Assessment		
AC2	The characteristics of loam soils are described in respect of their physical and other distinguishing features.				SA – Knowledge Assessment		
AC3	The characteristics of clay soils are described in respect of their physical and other distinguishing features.				SA – Knowledge Assessment		
AC4	The main soil types are identified and the significant differences are indicated according to theory.				SA – Knowledge Assessment		
Specific Outcome 3:	Recognise the role that water plays in cultivated soils and the factors that influence the infiltration rate in the different soil types.						
SO3	Assessment Criteria				Evidence Guide		
AC1	The necessity for a presence of water in the soil is described in terms of the role that water plays in the maintenance of soil fertility and plant growth.				SA – Knowledge Assessment		
AC2	The determination of the ratio of macro and micro pores is explained in respect of the texture and soil types.				SA – Knowledge Assessment		
AC3	The variance in the infiltration rates of different soils is explained in respect of the influences of their pore spaces and structure.				SA – Knowledge Assessment		
AC4	The influence that organic matter plays in a soil is explained in respect of the enhanced water retention and infiltration.				SA – Knowledge Assessment		
AC5	The effects that poor infiltration rates are explained in terms of the drainage, aeration and suitability for planting.				SA – Knowledge Assessment		
Specific Outcome 4:	Explain the role that capillary action plays in the transference and storage of water in the soil.						
SO4	Assessment Criteria				Evidence Guide		

AC1	Capillary action is defined in terms of the forces that cause water movement in the soil.	SA – Knowledge Assessment
AC2	The effects of capillary action are described in respect of the ability of water to be transferred both horizontally and vertically in the soil.	SA – Knowledge Assessment
AC3	The effects of capillary action are described in respect of the ability of water to be transferred both horizontally and vertically in the soil.	SA – Knowledge Assessment
AC4	The influence that the ratio of micro to macro pores in a soil has on capillary action is explained in terms of the potential that the various pores have for water transference.	SA – Knowledge Assessment
AC5	The benefits that capillary action provides for plants are described in respect of the improvements in water and nutrient retention.	SA – Knowledge Assessment
Specific Outcome 5:		Explain the role that aeration plays in the maintenance of soil fertility and the factors that cause poor aeration.
SO5	Assessment Criteria	Evidence Guide
AC1	The process of aeration is defined in terms of the gaseous exchange that occurs in the soil.	SA – Knowledge Assessment
AC2	The aeration potential of the different soil types is characterised in terms of their pore spaces and compaction levels.	SA – Knowledge Assessment
AC3	The primary functions of soil aeration are explained with respect to the maintenance of soil fertility and beneficial micro-organisms.	SA – Knowledge Assessment
AC4	The detrimental results of poor aeration are described in terms of the low nutrient intake and presence of organic toxins in the soil.	SA – Knowledge Assessment
AC5	Factors that contribute to the reduction of the soil's aeration are explained in terms of over watering and compaction.	SA – Knowledge Assessment

Essential Embedded Knowledge		Covered
1.	Identify the major soil types. Define the specific characteristics of each soil type. Evaluate the suitability of various soils for use in planting. Apply knowledge of soils in plant propagation and landscaping.	FA - Knowledge Assessment

Critical Cross-field Outcomes (CCFO)		Covered
1.	<p>UNIT STANDARD CCFO IDENTIFYING</p> <p>The learner is able to identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made by:</p> <p>Applying knowledge of a soil's infiltration rate when conducting watering.</p> <p>UNIT STANDARD CCFO ORGANISING</p> <p>The learner is able to organise and manage oneself and one's activities responsibly and effectively by:</p> <p>Identifying the soil types that have the highest potential for aeration.</p>	<p>FA - Knowledge Assessment</p> <p>SA – Workplace Assignment</p> <p>Personal Narrative</p>

<p>UNIT STANDARD CCFO COMMUNICATING The learner is able to communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation by: Compiling a report of the drainage ability of a soil and the suitability for planting.</p> <p>UNIT STANDARD CCFO SCIENCE The learner is able to use science and technology effectively and critically, showing responsibility towards the environment and health of others by: Understanding the role that capillary action plays in the storage and transference of water in soil.</p> <p>UNIT STANDARD CCFO DEMONSTRATING The learner is able to demonstrate an understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation: Evident in all Specific Outcomes.</p> <p>UNIT STANDARD CCFO CONTRIBUTING The learner is able to contribute to the full personal development of themselves and the social and economic development of the society at large: Evident in all Specific Outcomes.</p>	
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Instructions & Memorandum

You are required to complete the following:

FORMATIVE ASSESSMENT

“Formative Assessment refers to assessment that takes place during the process of learning and teaching” (SAQA: Criteria and Guidelines for Assessment Policy Document, pg 26).

Your Formative Assessment consists of:

Class based activities

1. Knowledge Component: Knowledge Questions

These activities will be completed during the classroom or facilitated session and can be found in the learning material. Please answer all the questions provided and submit your answers with your portfolio of evidence.

2. Observation Assessment

To be completed by facilitator at the end of the course.

SUMMATIVE ASSESSMENT

“Summative Assessment is assessment for making a judgement about achievement. This is carried out when a learner is ready to be assessed at the end of a programme of learning” (SAQA: Criteria and Guidelines for Assessment Policy Document, pg 26).

Your Summative Assessment consists of:

3. Workplace Assignment

Please complete the assignment by following the instructions provided.

4. Personal Narrative

The personal narrative offers a chance for you to reflect on the financial requirements of a new venture and prove your competency in the application of the learning. The narrative is part of the practical component of your assessment and will review your understanding of the course material.

5. Logbook

Please complete the Log Book by following the instructions provided.

SUMMATIVE ASSESSMENT

2.1 KNOWLEDGE QUESTIONNAIRE

Instructions to the Learner: The following questions must be answered in filled giving examples where asked. Please read all the questions carefully and take time to consider your answer before recording it.

UNIT STANDARD: 264184 Apply pest control practices in ornamental plant production and landscaping

Important Note: Should any additional information / documents be required or attached, kindly ensure that you have referenced them accurately as identified in each section.

US REFERENCE: SO1 AC 1

1. List the personal protective clothing and equipment that should be used when working with chemical control substances.

Gloves. Breathing mask, protective shoes, and protective overall or overcoat.

US REFERENCE: SO1 AC2

2. List the items of PPE necessary for the application of chemical control substances in an open area or landscape.

Gloves. Breathing mask, protective shoes, and protective overall or overcoat.

US REFERENCE: SO1 AC3

3. Explain the reasons why items of PPC must be washed after chemical pest control has been used.

To remove all the residue that may be present on the material.

US REFERENCE: SO1 AC4

4. Explain the importance of covering any open sores prior to working with chemical control substances.

The harmful substances or chemicals may enter your body / bloodstream at the open wound.

US REFERENCE: SO1 AC5

5. Explain the reasons why no smoking, drinking or eating is allowed whilst working with hazardous chemicals.

Certain chemicals may be harmful and therefore eating or drinking may result in your food / hands coming into contact with the chemicals. Smoking should not be allowed due to the fact that a lot of chemicals are flammable and may ignite or explode when exposed to open flames.

US REFERENCE: SO1 AC 7

6. Explain the importance of adhering to the manufacturer's instructions on the data sheets of control chemicals in terms of the consequences that the incorrect application of these can have on the plants and the environment.

To ensure that the chemicals will have the desired effect as indicated by the manufacturer and to avoid damage and injury from occurring.

US REFERENCE: SO1 AC8

7. Explain why empty hazardous chemical containers must be disposed of and may not be used for any other purpose in respect of the possible danger that the residue in these containers may pose to the plants and workers.

This may result in the different chemical residues mixing and contaminating one another.

US REFERENCE: SO1 AC9

8. Explain the importance of erecting the appropriate warning signs, before handling or using hazardous chemicals in the workplace.

To ensure that the staff are well aware of the dangers and pre-cautions that needs to be taken when working with the specific chemicals in the workplace.

US REFERENCE: SO1 AC10

9. Explain the importance of determining the wind's direction and why an operator should work into the wind.

To avoid the wind direction from carrying over the fumes of the chemicals being handled / worked with.

US REFERENCE: SO1 AC11

10. Explain why hands, arms and any other body parts must not be exposed when applying hazardous chemicals.

To avoid accidents / burns / injuries from occurring from coming into contact with the hazardous materials.

US REFERENCE: SO2 AC2

11. Explain why it is required to specifically mark all pest control applicators in terms of the danger that the chemical residue will have to the workers, plants and environment.

To ensure that the necessary precautionary measures could be taken and the risks involved from using the chemicals will be understood by the staff handling / using them.

US REFERENCE: SO2 AC3

12. Explain the typical function of a pad applicator. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO2 AC6

13. Explain the correct procedure to use knapsack spray in your organisation.

As per the learner's specific organisational policies and procedures for the use of knapsack spray.

US REFERENCE: SO2 AC7/3 AC 3

14. Explain the importance of following instructions accurately when mixing and diluting chemicals.

To ensure that the chemicals are mixed at the correct ratio / strength which will ensure that it has the desired effect as intended by the manufacturer.

US REFERENCE: SO2 AC9

15. Explain the importance of conducting preventative maintenance checks on the chemical application equipment.

To avoid costly delays to service delivery when equipment are not available or functioning correctly.
To ensure for safety of all staff using the application equipment.

US REFERENCE: SO3 AC 1

16. Explain the importance to minimise the impact that control chemicals have on beneficial insects. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO3 AC2

17. Explain the importance of identifying the residual levels and efficacy periods of control substances.

To ensure that the correct measurements can be made to implement effective application procedures to have the desired effect.

US REFERENCE: SO3 AC4

18. List the possible consequences of spraying in windy conditions in relation to the damage that may be inflicted to trees and neighbouring plants.

The wind may carry the chemicals to undesired locations or uneven coverage may result.

US REFERENCE: SO3 AC5

19. Explain the typical use of spray screens and how it can be beneficial.

Spray screens will allow you to target specific areas for the application of chemicals.

US REFERENCE: SO3 AC6

20. List the possible impact that "runoff" water from hard surfaces can cause that have been treated with broad spectrum herbicides.

This may contain chemical residues from earlier applications which may adversely affect the plants or areas and could even cause cross-contamination.

US REFERENCE: SO4 AC 1

21. Explain the control objectives of using contact insecticides in terms of the specific functions for which they have been formulated and the methods of application.

To ensure that they are applied correctly, with the correct dilution ratio in the manner as instructed by the manufacturer of the product.

US REFERENCE: SO4 AC 2

22. Explain the differences between deciduous and evergreen ground covers in terms of their distinctive features and dormancy habits.

A deciduous plant or tree is one that enters a state of annual dormancy, (usually in the winter but occasionally in response to drought or extreme heat). As a response to environmental stimuli or reduced daylight hours, a deciduous plant will drop its foliage at the end of the growing season. The seasonal dormancy is intended to protect the plant/tree from damage during the cold fall and winter months. The sap level is also decreased, ("down"), to protect the plant from stress and tissue damage from the alternating freezing and thawing temperatures. Most broad leaf trees are deciduous.

An evergreen plant or tree is one that goes into a state of semi-dormancy in most regions during the winter. The plant/tree may lose some foliage but most will remain in the semi-dormant state. The evergreen will have sap flow enough to sustain the remaining growth but in most instances will not be in an active growing phase. Conifer trees are an example of an evergreen in addition to some varieties of boxwoods and ground covers, such as pachysandra.

US REFERENCE: SO4 AC 3

23. List the characteristic features that distinguish each ground cover in terms of the colour, size and shape of their leaves and flowers. Make use of at least two different covers to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO4 AC 4

24. Explain the particular needs of the ground covers, when used in a typical landscape. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO4 AC 5

25. Explain the particular climatic requirements of the ground covers, when used in a typical landscape. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO5 AC 3

26. List the characteristic features that distinguish each annual bedding plant in terms of the colour, size and shape of their leaves and flowers. Make use of two (2) examples to explain your answer.

Example 1:

As per the learner's specific example selected for use within the answer provided.

Example 2:

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO5 AC4

27. List the particular needs of the annual bedding plants, when used in a typical landscape.

Annual plants need a soil that is well fed...meaning organic matter added, well-rotted manure or compost, regular sunlight and sufficient water as per the needs of the specific for the type of plants.

US REFERENCE: SO5 AC 5

28. List the articular climatic requirements of the annual bedding plants, when used in a typical landscape.

Regular sunlight with light to medium humidity levels and average year round temperatures.

US REFERENCE: SO6 AC3

29. Explain the differences between the various herbaceous plants in terms of the seasons in which they flower and their dormancy habits. Make use of two examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO6 AC4

30. List the characteristic features that distinguish each herbaceous plant in terms of the colour, size and shape of their leaves and flowers.

Usually referred to as herbs in common parlance, herbaceous plants are plants that are typically characterized as having soft, flexible, tender stems and leaves which may or may not bear flowers. Herbs can be seasonal (annual, biennial) as well as perennial. The leaves and stems of herbs have a tendency to die out by the time the flourishing period or season comes to a conclusion. Herbs lack hard, woody stems and once they have flowered and produced seeds, they die completely. New herbs grow from these seeds in the next season and thus the cycle continues. The new plants that grow when the older ones die out extract nutrition from the remaining living tissues of the previous plant that may be present above or below the ground in any of the following forms - roots, caudex, bulbs, rhizomes, corms, tubers or stolon's.

US REFERENCE: SO6 AC5/6

31. List the particular needs and requirements of the herbaceous plants, when used in a typical landscape.

Regular sunlight with light to medium humidity levels and average year round temperatures.

UNIT STANDARD: 264191 Demonstrate an understanding of a flowering plant's reproductive cycle

Important Note: Should any additional information / documents be required or attached, kindly ensure that you have referenced them accurately as identified in each section.

US REFERENCE: SO1 AC 1

32. Explain the role that pollination plays in the reproductive process of flowering plants.

Sexual reproduction in plants occurs when the pollen from an anther is transferred to the stigma. Plants can fertilize themselves: called self-fertilization. Self-fertilization occurs when the pollen from an anther fertilizes the eggs on the same flower. Cross-fertilization occurs when the pollen is transferred to the stigma of an entirely different plant.

When the ovules are fertilized, they will develop into seeds. The petals of the flower fall off leaving only the ovary behind, which will develop into a fruit. There are many different kinds of fruits, including apples and oranges and peaches. A fruit is any structure that encloses and protects a seed, so fruits are also "helicopters" and acorns, and bean pods. When you eat a fruit, you are actually eating the ovary of the flower.

US REFERENCE: SO1 AC2

33. List the various parts of the flower that are involved in pollination.

To be pollinated, pollen must be moved from a stamen to the stigma. When pollen from a plant's stamen is transferred to that same plant's stigma, it is called self-pollination. When pollen from a plant's stamen is transferred to a different plant's stigma, it is called cross-pollination. Cross-pollination produces stronger plants. The plants must be of the same species. For example, only pollen from a daisy can pollinate another daisy. Pollen from a rose or an apple tree would not work.

US REFERENCE: SO1 AC3

34. List the different agents that facilitate pollination in terms of the methods in which each assists the process.

Cross pollination occurs in case of plants where external agents, such as animals, people or the wind facilitates the transfer of pollen to the stigma.

US REFERENCE: SO1 AC4

35. List and explain at least two (2) different types of pollination.

Abiotic

Refers to situations where pollination is mediated without the involvement of other organisms. Only 10% of flowering plants are pollinated without animal assistance. The most common form of abiotic pollination, anemophily, is pollination by wind. This form of pollination is predominant in grasses, most conifers, and many deciduous trees. Hydrophily is pollination by water and occurs in aquatic plants which release their pollen directly into the surrounding water. About 80% of all plant pollination is biotic. In gymnosperms, biotic pollination never takes place. These plants always exhibit anemophily that is wind pollination. Of the 20% of abiotically pollinated species, 98% is by wind and 2% by water.

Biotic

More commonly, the process of pollination requires pollinators: organisms that carry or move the pollen grains from the anther to the receptive part of the carpel or pistil. This is biotic pollination. The various flower traits (and combinations thereof) that differentially attract one type of pollinator or another are known as pollination syndromes.

US REFERENCE: SO1 AC5

36. Explain the different modifications involved in flower pollination. Make use of examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO2 AC 1/2

37. Explain the role and functions that fertilisation plays in the reproductive process of flowering plants.

Roles and functions;

After pollination fertilization takes place. This is when the pollen and the ovule join together to make a seed. The seed also contains a food store, usually starch. The part of the flower surrounding the seed is known as the fruit. After fertilization the petals and stamens wither and die. The ovary (which forms the fruit) swells up, sometimes considerably. (ie as in the apple)

US REFERENCE: SO2 AC3 3 AC1

38. Explain the role that fruit performs to disperse and establish new plants.

Flowers are the reproductive structures of flowering plants (Angiosperms). Flowers can range from being very colourful and conspicuous, such as a rose or orchid, to being very simple, reduced and inconspicuous, such as those of grasses, oaks, and elms. The function of a flower is to produce the reproductive cells of the plant (eggs and pollen) and then produce seeds, the dormant young plant of the next generation.

The seeds of flowering plants are surrounded by a tissue called the fruit, which may be fleshy or dry. The culinary designation of "vegetable" is based on the use of the plant part (eaten as part of the main course in a meal). Vegetables are actually various plant parts; some are fruits (e.g., tomatoes and peppers), leaf stalks (celery), leaf blades (spinach), lateral buds (Brussels sprouts), young shoot (asparagus), massive flowering structure in bud stage (broccoli), root (sweet potato), underground storage stem (white potato).

Functions of fruit. Although fruits come in all shapes and sizes, they all function in protecting the seeds inside and in aiding seed dispersal. Protection may be afforded by hardening of the fruit to make accessing the seeds more difficult, or by accumulation of acids or other toxins. Fleshy colored fruit attract birds and animals; seeds pass through the gut unharmed. Some types of seeds cannot germinate unless they have first passed through the digestive tract of an animal. Many fruits promote wind dispersal. Other fruits have hooks, spines, and bristles that readily cling to fur and clothing—just walk your dog in an old field in autumn and see! Fruits called pods dry out as they mature and rip open, flinging out the seeds.

US REFERENCE: SO2 AC4

39. List two (2) examples of different fruit types and explain the method of achieving seed dispersal in each.

Example 1:
As per the learner’s specific example selected for use within the answer provided.
Example 2:
As per the learner’s specific example selected for use within the answer provided.

US REFERENCE: SO3 AC1

40. List and explain at least two (2) types of different cotyledons in terms of their differing forms and characteristics.

Monocots (or monocotyledons, meaning one cotyledon) and dicots (or dicotyledons, meaning two cotyledons) are the two main types of flowering plants. These two types are classified according to the different morphological characteristics of leaves, flowers and fruit of flowering plants.

Comparison chart

	Dicot	Monocot
Embryo:	The dicotyledons embryo has two cotyledons.	Monocotyledons have one cotyledon.
Leaf venation:	Leaf veins are reticulated.	Leaf veins are parallel.
Petals of flower:	multiples of four or five	multiples of three
Secondary growth:	Often present	Absent
Stem and vascular system:	Bundles of vascular tissue arranged in a ring. The vascular system is divided into a cortex and stele.	Bundles of vascular tissue scattered throughout the stem with no particular arrangement, and has no cortex.
Pollen:	Pollen with three furrows or pores	Pollen with a single furrow or pore
Roots:	Roots develop from radicle	Roots are adventitious.
Examples:	Legumes (pea, beans, lentils, peanuts) daisies, mint, grass, lettuce, tomato, oak, tree, etc.	Grains, (wheat, corn, rice, millet) lilies, daffodils, sugarcane, banana, palm, ginger, onions, bamboo, sugar, cone, palm tree, banana tree

US REFERENCE: SO4 AC1

41. Explain the reasons why plants need to broadcast their seeds.

In order for reproduction to occur.

US REFERENCE: SO4 AC2

42. Explain the methods of how seeds are naturally transported.

Wind, animals.

US REFERENCE: SO5 AC1

43. Explain the process of germination in terms of the initiation of growth in the seed.

Germination

Germination is the process by which the seed actually starts to grow.

Conditions needed for germination

The seed will not germinate until it gets warm. As well as warmth the seed also needs oxygen and water to grow. Without all three (Water, oxygen and warmth) the seed will not grow.

The germination period is time between planting and starting to germinate.

US REFERENCE: SO5 AC2

44. List the typical conditions which are required for successful germination to take place.

Conditions needed for germination

The seed will not germinate until it gets warm. As well as warmth the seed also needs oxygen and water to grow. Without all three (Water, oxygen and warmth) the seed will not grow.

The germination period is time between planting and starting to germinate.

US REFERENCE: SO6 AC1

45. Explain the factors that assist with the onset of growth from a seed and how this contributes towards its growth.

Conditions needed for germination

The seed will not germinate until it gets warm. As well as warmth the seed also needs oxygen and water to grow. Without all three (Water, oxygen and warmth) the seed will not grow.

The germination period is time between planting and starting to germinate.

US REFERENCE: SO6 AC2

46. Explain the process of radicle growth in respect of its root development.

Radicle is the embryonic root. It is the first structure to emerge from the seed:

After about three days, depending on the temperature, the radical grows and bursts through the testa.

It grows down between the soil particles, its tip protected by a root cap

Root hairs appear in the region where elongation has ceased. Water and salts from the soil are absorbed by the root hairs on the radical and pass to the rest of the seedling. Later, lateral roots develop from the radical.

Hypocotyl is the stem-like portion of the embryo below the point of attachment but above the embryonic root. Once the radical is firmly anchored in the soil, the hypocotyl starts to grow. The rapid growth of the hypocotyl pulls the cotyledons out of the testa (seed coat) and through the soil.

US REFERENCE: SO6 AC3

47. Explain plumule growth in respect of its resultant stem development.

The plumule is still between the cotyledons and thus protected from damage during its passage through the soil. Sometimes the testa, still partly enclosing the cotyledons, is brought above the soil and pushed off later as the cotyledons separate. Once above the soil, the hypocotyl straightens and the cotyledons separate, exposing the plumule

US REFERENCE: SO6 AC4

48. Explain sexual reproduction in terms of the various structures that a flower performs.

In sexual reproduction, a new individual is produced by the combining of material from two parents. In plants, as in animals, a sperm moves towards an egg. Fertilization occurs when the egg and sperm nuclei (the central part of each cell) unite to start development of the offspring. By repeated cell division, the fertilized egg grows from a single cell into a many-celled embryo (a tiny new plant that develops into a seed). All living things that reproduce sexually take some features from each parent. Next year's flowers will resemble this year's flowers because they inherit features from both of their parents.

UNIT STANDARD: 264184 Identify common ornamental plants

Important Note: Should any additional information / documents be required or attached, kindly ensure that you have referenced them accurately as identified in each section.

US REFERENCE: SO1 AC 1/2

49. List ten (10) distinctly different trees, commonly found in the workplace.

Tree	Form Description	Growth Habit
As per the examples of trees available within the learner's area of operation.	As per the specific trees selected by the learner.	As per the specific trees selected by the learner.

US REFERENCE: SO1 AC3

50. Explain the differences between deciduous and evergreen trees.

Deciduous (de-sid-you-us) trees usually have green leaves that change colour in the fall to bright red, orange or yellow. The leaves fall off for the winter, but the tree isn't dead – the leaves all grow back again in the spring. Most deciduous trees are hardwood, and young deciduous trees tend to grow faster than evergreen trees. Oak trees, fruit and nut trees, and maple trees are all deciduous.

The opposite of deciduous trees are evergreens. Instead of leaves, evergreens usually have darker green shoots or spiky needles. Sometimes the shoots or needles fall, but a new one grows right back in its place. That makes these trees stay green all year round, even in the winter! Many evergreen trees are coniferous (cone-if-er-us), which are trees that grow cones.

US REFERENCE: SO1 AC4

51. List the characteristic features that distinguish each tree in terms of the colour, size and shape of their leaves, flowers and fruit. Make use of two (2) different trees to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO1 AC5

52. List the particular needs of the trees, when used in a typical landscape. Make use of two (2) examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO1 AC6

53. List the particular climatic requirements of the trees, when used in a typical landscape. Make use of two (2) examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO2 AC1

54. List fifteen distinctly different shrubs, commonly found in the workplace.

1) As per the examples of shrubs available within the learner's area of operation.

US REFERENCE: SO2 AC3/4

55. List the common differences between deciduous and evergreen shrubs in terms of its features.

Deciduous shrubs lose all of their leaves and are barren for a part of the year, the leaves are often broad. Evergreen trees retain some or all of their foliage throughout the year, growing new leaves before the old ones fall off, the leaves are often pine needles. Evergreen trees are also known as coniferous shrubs.

US REFERENCE: SO2 AC5/6

56. Explain the particular needs and climatic requirements of shrubs, when used in a typical landscape. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO3 AC3

57. List the common differences between deciduous and evergreen climbing plants.

What's the difference between climbers and wall shrubs? Generally speaking, climbers are plants that twine their way upwards, through trees or over fences, twisting and turning as they go. If they run out of places to climb up, they trail downwards. They may be self-clinging, using tendrils, curly leaf stalks, suckers, or aerial roots ... or they may need encouragement using wires, netting, obelisks, or trellis. There are evergreen climbers and deciduous climbers. They may have flowers or they may just provide foliage cover. Parthenocissus species (Virginia Creeper and Boston Ivy) dazzle us with their autumn leaf colour. A few, such as Grape vines or Actinidia (Kiwi fruits), bear edible fruit!

US REFERENCE: SO3 AC4

58. Explain the characteristic features that distinguish each climbing plant. Make use of two (2) examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO3 AC5 /6

59. List the particular needs and climatic requirements of climbing plants. Make use of two (2) examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO4 AC1

60. List five (5) examples of different ground covers, commonly found in the workplace.

As per the examples of covers available within the learner's area of operation.

US REFERENCE: SO4 AC3

61. List the common differences between deciduous and evergreen ground covers.

Evergreen ground covers are the most popular of groundcover plants, particularly for shaded areas. Many ground cover plants don't qualify as ground covers because they don't spread very well and aren't low growing enough for ground coverage.

US REFERENCE: SO4 AC4

62. List the characteristic features of two (2) different ground covers.

Ground Cover 1)

As per the learner's specific example selected for use within the answer provided.

Ground Cover 2)

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO4 AC5/6

63. List the characteristic needs and climatic requirements of two (2) different ground covers.

Ground Cover 1)

As per the learner's specific example selected for use within the answer provided.

Climatic Requirements

US REFERENCE: SO5 AC 1/3/4/5

64. List ten (10) distinctly different annual bedding plants, commonly found in the workplace.

Plant	Needs Climatic Requirements	Features and Characteristics
As per the examples of plants available within the learner's area of operation.	As per the specific plants selected by the learner.	As per the specific plants selected by the learner.

65. List five (5) distinctly different herbaceous plants, commonly found in the workplace.

Plant	Needs Climatic Requirements	Features and Characteristics
As per the examples of plants available within the learner's area of operation.	As per the specific plants selected by the learner.	As per the specific plants selected by the learner.

UNIT STANDARD: 264177 Identify the different organisms of the plant kingdom

Important Note: Should any additional information / documents be required or attached, kindly ensure that you have referenced them accurately as identified in each section.

66. List the factors which commonly define and classify fungi.

The following is a list of the most commonly cited characters shared by most Fungi:

- The Fungi are eukaryotes, which may exist in nature as either single or multi-celled organisms, or in both at different points in the life cycle.
- Fungi are avascular -- no specialized respiratory, digestive or transport systems beyond the hyphae themselves.
- Most fungi grow as tubular filaments called hyphae. A connected mass of hyphae is a mycelium.
- Fungi have a vegetative body called a thallus, composed of hyphae.
- The walls of hyphae are often reinforced with chitin, a polymer of N-acetyl glucosamine.
- Fungal cell membranes contain ergosterol, rather than cholesterol.
- The Fungi have a unique biosynthetic pathway for lysine.
- Fungi produce a unique form of tubulin in connection with nuclear division.
- Fungi have small nuclei with very little repetitive DNA
- Mitosis occurs without dissolution of the nuclear membrane.
- Fungi are never autotrophs. No fungus has chlorophyll or chloroplasts.
- Fungi are usually found either as opportunistic saprophytes (living on dead organic matter) or in some parasitic or symbiotic relationship with plants or other autotroph.
- Fungi digest food outside their bodies: they release enzymes into the surrounding environment (exoenzymes), breaking down organic matter into a form the fungus can absorb
- Food reserves stores as glycogen (like animals), not starch (like plants).
- Fungi reproduce by means of spores, budding, or fragmentation.
- Spores may be either sexual or asexual.
- Spores may be used as a dormant, resting phase, like bacterial spores
- In short, Fungi are a rather odd, and distinctly different, part of the tree of life

67. List two (2) examples of harmful fungi and explain their roles in terms of the functions that they perform in ecosystems and food webs.

Example 1)
Roles:
As per the learner's specific example selected for use within the answer provided.
Example 2)
Roles:
As per the learner's specific example selected for use within the answer provided.

68. List the conditions that are required for fungi to thrive.

The area fungus need to grow in usually a damp, moist humid area. Fungi include molds, mushrooms and yeasts and they all have different growing conditions. They all do need moisture, but they also require nutrients. Yeasts and molds grow on sugars primarily. Molds especially like acidic environments. Mushrooms will grow on dead organic material.

US REFERENCE: SO2 AC1

69. List the factors that typically define and classify algae.

Algae are eukaryotic organisms. They do contain chlorophyll, but have no roots, stems, or leaves. Algae are classified into seven divisions. Five are located in the Protista Kingdom, and two are located in the Plantae Kingdom. Most algae goes through photosynthesis, however, there are types that obtain energy from chemical reactions. Algae can reproduce asexually or sexually.

US REFERENCE: SO2 AC2

70. Give two (2) examples of algae including the specific habitats that they are found in.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO2 AC3

71. Explain the typical role that algae play in the eco system.

Algae are a vital food source for marine organisms from plankton to the tadpoles of frogs. Seaweed is also an algae and not only is grazed by fish but is a valuable fertiliser for use in farming. Algae may also be responsible for kick starting the generation of oxygen in the atmosphere of the early Earth. Photosynthesis is a clever trick that algae and plants have developed to turn sunlight, carbon dioxide and water into sugars and oxygen. We owe our life to this process since it gives us food and air to breathe.

US REFERENCE: SO3 AC1

72. List the factors that define and classify moss.

Mosses have several characteristics that distinguish them from other bryophytes. Only mosses have a multicellular rhizoid, a root-like subterranean tissue that absorbs water and nutrients from the soil. Liverworts and hornworts have single celled rhizoids. Mosses have radial symmetry, in that a cut down the long axis of an individual gives two similar halves.

US REFERENCE: SO3 AC2

73. List the typical conditions required for moss to flourish in.

Mosses like moisture, shade and generally prefer an acidic soil (5.0 - 6.0). Partial to full shade is essential. Hot afternoon sun will destroy a patch of moss in no time. Did you know that moss has no roots? It has little filaments that allow it to take up nutrients, but no true roots, so it will dry out even faster than groundcover plants.

US REFERENCE: SO4 AC1

74. List the typical factors that define or classify ferns.

Ferns are different than flowering plants. That's pretty obvious. But although they seem rather alien at first, they are also much simpler organisms, and so have a lot less parts to worry about. No wondering about superior or inferior ovary placement, or whether the filaments of the nonfunctional stamens are glandular.

Spore-producing ferns (the one we usually see) are asexual and consist of basic roots, stems and fronds (leaves). The fronds often consist of leaflets referred to as pinnae. On some or all of the leaves, or sometimes on just one specialized portion of a special leaf, are the structures called sporangia. These are usually clustered into groups called sori, which are the visible dark round things on the bottom of the fronds. Sometimes the sori are protected by flaps or disk structures called indusia, or covered by the rolled over edge of the pinnae.

US REFERENCE: SO4 AC2

75. Give two (2) examples of different ferns found in your area.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO4 AC3

76. Explain the role that ferns play in the environment.

In general, ferns are of minor economic importance to humans. However, ferns are popular horticultural plants and many species are grown in ornamental gardens or indoors. Most people can recognize ferns as understory or groundcover plants in woodland habitats.

However, several hundred million years ago ferns and fern allies were the dominant terrestrial plants. Thus, the fossils of these plants have contributed greatly to the formation of our fossil fuels—coal, oil and natural gas.

US REFERENCE: S04 AC4

77. Explain the typical reproduction cycle of a fern. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: S05 AC1

78. List the typical factors that define or classify gymnosperms.

Gymnosperms are that sub-division of Spermatophyta which includes those plants which bear naked seeds i.e., the ovules and the seeds that develop from these ovules are not enclosed in fruit wall. In other words the ovary is absent.

In comparison to angiosperms it is a smaller group having only 700 species. Even then they are distributed throughout the whole world. They are dominant vegetation in some forests. They are more advanced than bryophyta and pteridophyta. Many gymnosperms are fossils.

Important Characteristics

- Most plants are perennial and woody.
- They are xerophytic, with sunken stomata and thick cuticle.
- The xylem is without vessels and phloem lacks companion cells.
- Reproductive organs are usually in the form of cones or strobili. The male cones are made up of microsporophylls and female cones are made up of megasporophylls.
- Large number of microspores (pollen grains), are produced in microsporangia after reduction division, which later form male gametophytes.
- Male gametophytes of all gymnosperms produce pollen tubes.
- All gymnosperms are wind pollinated.

US REFERENCE: S05 AC2

79. Give two (2) examples of different gymnosperms found in your area.

As per the examples of gymnosperms available within the learner's area of operation.

US REFERENCE: S05 AC3

80. Explain the role that gymnosperms play in the environment.

Gymnosperms take in Carbon Dioxide (CO₂) and releases Oxygen (O).

The paper we write on and the wood we use to build with comes from conifers. Turpentine and rosin is made from the conifer's sap. Fibres in clothing and cellophane wrappers also come from conifers. Large, Managed forests have been made to balance how many conifers are left and how many we cut down.

US REFERENCE: S05 AC4

81. Explain the typical reproduction cycle of gymnosperms. Make use of an example to explain your answer.

As per the learner's specific example selected for use within the answer provided.

UNIT STANDARD: 264179 Identify the various soil types and their uses in plant propagation and landscaping

Important Note: Should any additional information / documents be required or attached, kindly ensure that you have referenced them accurately as identified in each section.

US REFERENCE: SO1 AC 1

82. List the visible differences between topsoil and subsoil in terms of the darker colour of the organic residue in topsoil.

As the name suggests, topsoil is the topmost layer of the soil. It is this layer of the soil that we walk on and cultivate our crops. Topsoil is made of fine, loose soil particles. Agents of erosion like wind, water, temperature fluctuations and glaciers wear out the bedrock to form the topsoil. The topsoil is porous. It has air between its particles and water easily drains through it. This layer lies just beneath the topsoil. It is more compact than the topsoil. Hence, the subsoil is not as well aerated as the topsoil. It is lighter in color and stickier than the topsoil. Therefore, it is difficult to handle, compared to the topsoil.

US REFERENCE: SO1 AC2

83. Explain the physical differences between topsoil and subsoil in accordance with the smoother texture of topsoil.

Topsoil is made of fine, loose soil particles. Agents of erosion like wind, water, temperature fluctuations and glaciers wear out the bedrock to form the topsoil. The topsoil is porous. It has air between its particles and water easily drains through it. This layer lies just beneath the topsoil. It is more compact than the topsoil. Hence, the subsoil is not as well aerated as the topsoil. It is lighter in color and stickier than the topsoil. Therefore, it is difficult to handle, compared to the topsoil.

US REFERENCE: SO1 AC3

84. Explain the process of the formation of humus.

Humus is a general term used to indicate the more or less complex organic substance resulting from the decomposition of plant and animal residues in a process called humification that forms the organic portion of soil. It is a dark coloured (brown or black) stable form of organic matter that remains after most of plant or animal residues have decomposed and mineralized. Generally, the decomposition has proceeded sufficiently to make it amorphous (it has decomposed sufficiently so that the source material is no longer recognizable) and relatively stable (it resists further decomposition because it is chemically protected/resistant). Humus mixes with top layers of soil (rock particles), supplies some of the nutrients needed by plants and increases acidity of soil (many inorganic nutrients are more soluble under acidic conditions, become more available). Humus modifies soil texture, coating mineral particles and holding them together; creates loose, crumbly texture, that allows water to soak in and nutrients retained; permits air to be incorporated into soil.

US REFERENCE: SO1 AC4/5

85. Explain the typical value of organic material in topsoil and the growing of plants.

Above the topsoil, at ground level, is a thin layer composed almost entirely of organic matter. It's made up of varying materials, such as thatch in grasslands and leaf mold in forests. This layer is constantly decomposing as bacteria, fungi, worms and insects digest it and transform it into rich humus (see Reference 1, pages 1 and 2). Through the passage of time and the activity of soil-based organisms, this organic material slowly becomes incorporated into the topsoil beneath it (see Reference 3). Humans can accelerate this process by adding organic matter to this layer as mulch or by adding finished humus to the soil in the form of mature compost.

US REFERENCE: SO2 AC1 /4

86. List the characteristics of sandy soils in respect of their physical and distinguishing features.

Sandy soil is comprised of minuscule pieces of rock .05 to 2 mm in diameter and has a gritty texture to it. Sandy soil is the lightest of all the soils and therefore is prone to both water and wind erosion if no plant life exists in it. Its light texture sometimes makes it a choice for gardeners looking to lighten other, heavier soils. Use caution when adding sand to lighten heavy clay soils, as the combination of the two can create a harder, not lighter, soil.

US REFERENCE: SO2 AC 2 /4

87. List the characteristics of loam soils in respect of their physical and distinguishing features.

Perhaps one of the most defining characteristics of loam is its fertility. This soil is moist, loose and full of biomaterial such as decaying worms and microbes that can be recycled as food for plant life. Because of this, loam soil is considered the best soil in which to grow vegetables, garden fruits and flowers such as roses. Loam soil gets its nutritious qualities from decaying insects and other animals and plants. When these organisms decay, they release nutrients into the soil that are stored as dry parts of the soil. Worms and other subterranean life mix the soil and create passages where water can work. When it rains, the nutrients in the soil are released and are soaked up by plants' root systems.

US REFERENCE: SO2 AC3 /4

88. List the characteristics of clay soils in respect of their physical and distinguishing features.

Contrary to sandy soil, clay soil has very small particles with tiny pore spaces or micropores. Since there are more pore spaces, clay soil has an overall larger total pore space than sandy soil, due to which the soil absorbs and retains more water. This makes the soil poorly aerated and poorly drained. Even when the soil dries out, the fine texture of its particles makes them bond or "clod" together. This makes the soil very hard to work, hence the term "heavy soil." The term "heavy" or "light" refers to the level of ease with which the soil can be worked and does not indicate its weight.

US REFERENCE: SO3 AC1

89. Explain the need for the presence of water in the soil in respect of soil fertility and plant growth.

To create the correct environment and growth conditions for plants to grow in.

US REFERENCE: SO3 AC2

90. Explain how the ratio of macro and micro pores is determined in respect of different texture and soil types.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO3 AC3

91. Explain the variance in the infiltration rates of different soils. Make use of two (2) examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO3 AC4

92. Explain the typical impact of organic matter in a soil.

Organic matter not only improves the structure of fine-textured soils; it is equally beneficial for coarse textured soils, but in a different way. These soils have a high proportion of macro pores, facilitating gas exchange and water movement. However, due to a low proportion of micro pores, these soils are not moisture retentive. This makes frequent irrigation a necessity during dry periods. Organic matter substantially increases the proportion of micro pores, greatly improving the water holding capacity of a coarse-textured soil.

US REFERENCE: SO3 AC5

93. List the effects of poor infiltration rates in terms of the drainage, aeration and suitability for planting.

"Infiltration rate" is simply how fast water enters the soil and is usually measured in inches or ... low areas or can create ponded areas, thus killing upland plants.

US REFERENCE: SO4 AC1/2

94. List the process and effects of capillary action in respect of the ability of water to be transferred both horizontally and vertically in the soil.

Traditional garden irrigation systems are designed to provide a wet and dry soil moisture cycle.

An example of this is watering every second day, with enough water to stop the soil becoming too dry before the next watering cycle activates. The soil is continually moving between wet and dry cycles.

Capillary action is the process of water moving from a wet area to an adjacent dry area through a

porous media. It can be a slow process, especially in soil.

A good example of capillary action is placing a blotting sheet over a water spill. The water will soak into the immediate area of the blotter, then slowly spread further out from the spill. If you add some more water to the top of the blotter, at the center of the first spill, the water spreads around the damp area of the blotter quickly - while the edges of the blotter stain still expand relatively slowly. To summarize, for soil, water moves slowly through dry soil, and relatively quickly through wet / moist soil.

US REFERENCE: SO4 AC3

95. Explain the impact of the ratio of micro to macro pores in a soil has on capillary action.

Soils are composed of solid particles which have spaces between them. The soil particles consist of tiny bits of minerals and organic matter. The spaces between them are called pore space and are filled with air and water. It is desirable for an agricultural soil to have about one-half soil particles and one-half pore space by volume. Ideally, organic matter will account for 5% or more of the weight of soil particles. Moisture content varies considerably with factors such as soil drainage and the amount and frequency of rain or irrigation. For most agricultural crops conditions are best when the pore space is filled about equally with water and air.

US REFERENCE: SO4 AC4

96. List the benefits that capillary action provides for plants.

This same phenomenon occurs with your plant roots. There are certain molecules called hydrophilic molecules that allow this process to happen. In fact, the paper towel industry figured this out a long time ago and they're designed to mimic these effects. It turns out plant roots contain these special molecules. Plant roots are nature's paper towels —soaking up all that healthy water. Once the roots soak up the water from the soil, a process called transpiration delivers the water to the whole plant.

US REFERENCE: SO5 AC1

97. Explain the process of aeration in terms of the gaseous exchange that occurs in the soil.

To change or treat with air or gas." Although one of the primary results of turf aeration is to open channels in the soil for air movement and gas exchange in the root zone, our expectations for grounds-maintenance aeration are much greater. In most instances, traditional turf aeration involves the process of punching holes in the soil and removing a portion of the soil/thatch layer via a coring or spooning action. Other common practices included solid-tine spiking, slicing and to an extent-deep vertical mowing. All of these processes create openings in the root zone that allow for air and gas exchange. However, turf aeration has a much greater impact on the development and maintenance of quality covers.

US REFERENCE: SO5 AC2

98. List the aeration characteristics of two (2) different soil types. Make use of examples to explain your answer.

As per the learner's specific example selected for use within the answer provided.

US REFERENCE: SO5 AC3

99. Explain the primary function of soil aeration.

In nature, the topsoil layer is composed of fallen leaves, which through their decay, provide a light mulch over the root zones. In our urban landscapes, this leaf layer is usually removed and after many seasons of watering, the soil layer becomes compacted. This results in poor gaseous exchange between the roots and the atmosphere, poor water absorption, drainage problems and a general degradation of the soil environment where beneficial soil organisms live and thrive. These organisms play a major role in the tree's ability to absorb soil-borne nutrients and every care should be taken to enhance their ecosystem.

100. Explain the impact of poor aeration on soil.

Affects the growth and general health / fertility of soil.

101. List the factors that can contribute towards the reduction of soil aeration.

Aerated soil is more resistant to fluctuations and extremes in temperature. During our hot summers this plays an important part in the tree's overall good health. Compacted soil heats up quickly and reaches higher temperatures. Higher soil temperatures increase evaporation rates resulting in less moisture reaching the roots. A six to eight inch layer of coarsely shredded bark mulch maintains lower soil temperatures, slows evaporation and reduces the need for watering.

FOR ASSESSOR

File Checked:

Date	Assessor Signature

This is to verify that the learner has completed all the above and has achieved competence.

Assessor Name: _____ Assessor Reg. No: _____

Assessor Signature _____ Date: _____

This is to verify that the assessor has observed me in the workplace.

Learners Name: _____ Learners Reg No: _____

Learners Signature: _____ Date: _____

2.2 OBSERVATION ASSESSMENT

This Observation Assessment will be completed by the facilitator/assessor based on the learner's performance.

UNIT STANDARD: 264185 Apply pest control practices in ornamental plant production and landscaping

The assessor to complete the following: Remember to cover all range items. Assessor to record observations of learner's performances and / or make clear references to evidence attached in the spaces provided.

US REFERENCE: SO1 AC6

1. The safe handling procedures when using hazardous chemicals are demonstrated in accordance with the company's procedures.

Dates:

Observe the learner handling the hazardous chemicals in a safe manner by using the required PPE and following the manufacturer's and organisational safety procedures.

US REFERENCE: SO1 AC12

2. The procedures for the safe storage of hazardous chemicals are demonstrated in accordance with the company's procedures.

Dates:

Observe the learner storing the hazardous chemicals in a safe manner by using the required PPE and following the manufacturer's and organisational safety procedures.

US REFERENCE: SO2 AC1

3. The procedures for "drenching" an area using a watering can are demonstrated in accordance with the company's procedures.

Dates:

Observe the learner making use of watering can to complete the drenching of an allocated area in accordance with the company policies and procedures.

US REFERENCE: SO2 AC3

4. The correct procedure to use a pad applicator is demonstrated.

Dates:

Observe the learner following the manufacturer's instructions to correctly make use of an applicator pad.

US REFERENCE: SO2 AC4

5. The correct procedure to use an aerosol applicator is demonstrated.

Dates:

Observe the learner following the manufacturer's instructions to correctly make use of an aerosol applicator.

US REFERENCE: SO2 AC5

6. Explain the correct manner in which a spray canister should be used in accordance with your organisational policies and procedures.

Dates:

Question the learner whilst demonstrating on the correct procedure which should be followed when using a spray canister for application purposes.

US REFERENCE: SO2 AC6

7. The correct use of a knapsack spray is demonstrated in terms of the types of control chemicals that can be applied and its operation.

Dates:

Observe the learner following the manufacturer's instructions to correctly make use of a knapsack

spray.

US REFERENCE: SO2 AC8

8. The various spray nozzles are identified and their particular uses are described in terms of the droplet size and spray pattern that is required.

Dates:
Observe the learner effectively identifying the various spray nozzles for various purposes.
Q: Identify and describe the spray nozzles which you are using.
A:As per the specific nozzles used by the learner.

US REFERENCE: SO2 AC9

9. The methods of cleaning various spray equipment and other chemical applicators are demonstrated in accordance with the company's procedures.

Dates:
Observe the learner making use of water and cleaning agents to effectively clean, rinse and dry the spray equipment after use.

US REFERENCE: SO3 AC5

10. The effective use of spray screens is demonstrated.

Dates:
Observe the learner selecting and positioning the spray screens correctly to achieve the desired effect.

US REFERENCE: SO5 AC1

11. Ten distinctly different annual bedding plants, commonly found in the workplace, are identified by genus and species or variety.

Dates:
Observe the learner accurately identifying ten different annual bedding plants within their field and area of operation.

US REFERENCE: SO5 AC2

12. The diagnostic indicators of each annual bedding plant are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each bedding plant.

US REFERENCE: SO6 AC1

13. Five distinctly different herbaceous plants, commonly found in the workplace, are identified by genus and species or variety.

Dates:
Observe the learner accurately identifying five different herbaceous plants within their field and area of operation.

US REFERENCE: SO6 AC2

14. The diagnostic indicators of each herbaceous plant are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each herbaceous plant.

UNIT STANDARD: 264191 Demonstrate an understanding of a flowering plant's reproductive cycle

The assessor to complete the following: Remember to cover all range items. Assessor to record observations of learner's performances and / or make clear references to evidence attached in the spaces provided.

US REFERENCE: SO3 AC 2

15. The various parts of the embryo are identified and a description of the role that each has in the establishment of a new plant is given according to theory.

Dates:
Observe the learner effectively identifying the various parts of the embryo.
Q: Describe the role that each part has in the production of a new plant.
A:As per the learner's part identification.

UNIT STANDARD: 264184 Identify common ornamental plants

The assessor to complete the following: Remember to cover all range items. Assessor to record observations of learner's performances and / or make clear references to evidence attached in the spaces provided.

US REFERENCE: SO2 AC 2

16. The diagnostic indicators of each shrub are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each shrub.

US REFERENCE: SO3 AC 1

17. Five distinctly different climbing plants, commonly found in the workplace, are identified by genus and species or variety.

Dates:
Observe the learner accurately identifying five different climbing plants within their field and area of operation.

US REFERENCE: SO3 AC2

18. The diagnostic indicators of each climbing plant are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each climbing plant.

US REFERENCE: SO4 AC2

19. The diagnostic indicators of each ground cover are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each ground cover.

US REFERENCE: SO5 AC2

20. The diagnostic indicators of each annual bedding plant are used to define their particular form and growth habits.

Dates:
Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each annual bedding plant.

US REFERENCE: SO6 AC 2

21. The diagnostic indicators of each herbaceous plant are used to define their particular form and growth habits.

Dates:

Observe the learner identifying and explaining the growth habits through the use of the diagnostic indicators of each herbaceous plant.

UNIT STANDARD: 264177 Identify the different organisms of the plant kingdom

The assessor to complete the following: Remember to cover all range items. Assessor to record observations of learner's performances and / or make clear references to evidence attached in the spaces provided.

US REFERENCE: SO1 AC2

22. Examples of common fungi are identified, including a basic description of their structure and the environments in which they are normally found.

Dates:

Observe the learner effectively identifying examples of common fungi and providing the basic description of the structure and habitat of each.

UNIT STANDARD: 264179 Identify the various soil types and their uses in plant propagation and landscaping

The assessor to complete the following: Remember to cover all range items. Assessor to record observations of learner's performances and / or make clear references to evidence attached in the spaces provided.

NO DIRECT OBSERVATION IS REQUIRED FOR THIS UNIT STANDARD.

1. PERSONAL NARRATIVE

Answer the following questions based on your experience during the completion of this module. Discuss what you did well and what you would like to do differently.

	What went well?	What would I do differently?
1	<i>I was able to identify and solve problems effectively throughout the various activities completed in this module.</i>	
2	<i>I was able to understand how different workplace activities have an impact on each other.</i>	
3	<i>I was able to use new technology effectively in my daily tasks that I carried out.</i>	
4	<i>I was able to communicate effectively with my team members and supervisors.</i>	
5	<i>I was able to complete all my work in an organized and efficient manner.</i>	
8	Additional Comments	
	Learner Name:	Signature
	Assessor Name	Signature
	Date	Date

2. WITNESS TESTIMONY

Workplace Testimonial Evidence

Instructions:

The following section must be completed by the learner's supervisor / manager in the workplace based on the learner's workplace performance relevant to the Unit Standard completed.

Constructive comments and testimonial evidence may also be attached in a separate document and referenced in the section below.

Testimonial Comments and Evidence of Workplace Performance			
Unit Standard Title		SAQA ID:	
Supervisor / Manager Testimonial			
Unit Standard Title		SAQA ID:	
Supervisor / Manager Testimonial			
Unit Standard Title		SAQA ID:	
Supervisor / Manager Testimonial			
Unit Standard Title		SAQA ID:	
Supervisor / Manager Testimonial			
Supervisor Acknowledgement			
Date:		Supervisor Signature	
Assessor Acknowledgement			
Date:		Assessor Signature	
Comments and Feedback			
Learner Acknowledgement			
Date:		Learner Signature	
Comments and Feedback			
Moderator Acknowledgement			
Date:		Moderator Signature	

3. LOGBOOK

This log book has been included to record all time spent on the report and assignment as well as other activities related to developing, implementing and monitoring a quality policy for a new venture. These activities should add to a total of 28 hours.

Time spent completing an activity should be signed off by a supervisor, mentor or witness where possible.

Learner Name:				
Course Name				
Unit Standard Name				
ID Number				
Unit Standard Name				
ID Number				
Unit Standard Name				
ID Number				
Unit Standard Name				
ID Number				

Activity	Start Date	End Date	Total No of Hours	Sign Off by Supervisor / Manager / Mentor / Witness		
				Name & Surname	Relationship to Learner	Signature

FEEDBACK SECTION

Comments from Learner:

JUDGEMENT

Meet the requirements:
Requires additional evidence:
Can continue to the next assessment:

Do not meet the requirements:
Requires another assessment:
Requires another assessment by another assessor:

Action required: _____ By when: _____

Assessor's feedback remarks

Declaration by Learner

I, _____ declare that I am satisfied that the feedback given to me by the Assessor was relevant, sufficient and done in a constructive manner. I accept the assessment judgment and have no further questions relating to this particular assessment instrument.

Learner Name & Signature	Date	Assessor Name & Signature	Date	Moderator Name & Signature	Date

ASSESSMENT DECISION

Indicate with a tick in the relevant sections:

The learner has not submitted sufficient evidence and is therefore not yet competent	
The learner is required to submit additional evidence against the following:	
The learner is required to improve in the following:	
The learner is required to be reassessed:	
The learner is required to be assessed by another assessor:	
The learner has submitted evidence that is valid, relevant, current, sufficient and authentic against all the listed specific outcomes and covered all range statements and critical cross field outcomes	
The learner is competent against the listed unit standards	
The learner can be issued with a unit certificate	
The learner has completed a full qualification	

Assessors full name & signature	Date

Declaration by Learner

I, _____ declare that I am satisfied that the assessment conducted by the Assessor was relevant, sufficient, and constructive. I accept the assessment decisions and have no further questions relating to this particular assessment process.

Learner name & sign	Date	Assessor name & sign	Date
		Moderator name & sign	Date

Reassessment Decision

The learner has submitted evidence that is valid, relevant, current, sufficient and authentic against all the listed specific outcomes and covered all range statements and critical cross field outcomes	
The learner is competent against the listed unit standards	
The learner can be issued with a unit certificate	
The learner has completed a full qualification	

Assessors full name & signature	Date

Declaration by Learner

I, _____ declare that I am satisfied that the assessment conducted by the Assessor was relevant, sufficient, and constructive. I accept the assessment decisions and have no further questions relating to this particular assessment process.

Learner name & sign	Date	Assessor name & sign	Date
		Moderator name & sign	Date

EVALUATION OF ASSESSMENT					
Learner Name		Assessor name			
Unit Stds		Date			
Review dimension	Learner		Assessor		Action
	Yes	No	Yes	No	
Were the principles / criteria for good assessment achieved?					
Did the assessment relate to the registered standard?					
Was the assessment practical?					
Was it time efficient and cost-effective?					
The assessment did not interfere with my normal responsibilities?					
Was the assessment instrument fair, clear, and understandable?					
The assessment judgment was made against set requirements?					
Was the venue and equipment functional?					
Were special needs identified and the assessment plan adjusted?					
Was feedback and communication constructive?					
Was an opportunity to appeal given?					
Was all evidence recorded?					
Were the review / evaluation process apparent and user friendly?					

Learner Declaration of Understanding					
I am aware of the moderation process and understand that the moderator could declare the assessment decision invalid					
Learner Name & Sign	Date	Assessor Name & Sign	Date	Moderator Name & Sign	Date