Inspiring everyone to grow

RHS Qualifications

RHS Level 2 Certificate in Practical Horticulture

Qualification Specification

For first teaching September 2022

Qualification number: 610/0486/8

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1. RHS Qualifications Contact Details

RHS Qualifications is the Awarding Organisation of the Royal Horticultural Society.

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RHS Website: rhs.org.uk/qualifications

2. Equality and Diversity Policy Statement

RHS Qualifications is committed to policies that will promote equal opportunities in all its operations, regardless of age, disability, ethnic origin, gender, marital status, religion, sexual orientation or any other factor.

RHS Qualifications is committed to ensuring that there is no unfair discrimination in any of its operations and will consider all current legislation in relation to the equality of opportunity.

RHS Qualifications will constantly monitor and review its policies and practices pertaining to equal opportunities, to ensure that they remain consistent with its equal opportunities objectives and continue to comply with all relevant legislation. RHS Qualifications will strive to make awareness of and respect for equality and diversity, an integral part of the culture of the organisation. A copy of the RHS Qualifications Equality and Diversity Policy is available on the RHS website.

The privacy, and security of personal data is extremely important to us. Personal information that centres provide is used for the purposes of furthering our legal obligations as an awarding body for creating qualifications and issuing of certificates. For further information and a detailed explanation, please refer to our Privacy Policy on the RHS website (rhs.org.uk/privacy).

3. RHS Level 2 Certificate in Practical Horticulture

3.1. Introduction and context

The practice of plant and garden cultivation combines a deep understanding of scientific principles with the development of a wide range of craft skills. The scientific principles involve the ability to positively identify a wide range of plants, pests, diseases, pathogens and disorders. The craft skills include the planting, pruning, propagation and maintenance of plants along with the establishment and management of turf, and maintenance of garden features.

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3.2. Audience

This qualification has been designed to provide learners with the breadth of horticultural knowledge and skills required to carry out routine tasks proficiently in a variety of contexts. It supports progression to employment within areas of the horticultural industries (such as professional gardening, landscaping, plant production and garden retail), as well as supporting learning in entry level roles in the early stages of a horticultural career. It is also designed to meet the needs of the amateur gardener.

It also provides learners the opportunity of personal development, including the changing of careers and engagement in their learning and offers an opportunity to develop transferable skills such as problem solving, implementing management plans / programmes, and communication as part of their applied learning.

In terms of progression, it allows learners the opportunity to progress to further learning opportunities at Level 3, allowing progression to higher education, career advancement or entry in the horticultural industries at a more advanced, technical level. There are no pre-requisites for entry to this qualification.

3.3. Guided Learning Hours (GLH) and Total Qualification Time (TQT)

The Guided Learning Hours (GLH) represent the time that the learner spends learning under the immediate guidance and supervision of a tutor and includes assessment by the tutor, as well as invigilated exams. Guided Learning Hours are always less than total qualification time, as learners are expected to complete a certain amount of study in their own time. The Guided Learning Hours for this qualification is 120.

Total Qualification Time (TQT) includes the Guided Learning Hours and represents the notional time that an average learner could reasonably expect to take to complete the learning outcomes of the units to the standard determined by the assessment criteria, and gain the qualification. It includes all face-to-face contact with tutors as well as assessment time and unsupervised directed study, coursework and practice. The Total Qualification Time for this qualification is 180.

3.4. Teaching Pattern

The qualification is designed to be studied on a part-time basis. No particular teaching pattern is specified, and centres offering courses leading to the qualification are free to define their own structure and teaching hours.

3.5. Qualification Structure

This certificate is divided into eight topics, each made up of elements covering a specific aspect of practical horticulture, as follows:

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RHS Level 2 Certificate in Practical Horticulture

Topic		Elements
1	**Plant Identification:** provides the skills and knowledge to enable learners to identify a wide range of plants.	1. Plant identification
2	**Plant Establishment:** provides learners with the skills involved in the establishment of plants in containers and the open ground.	1. Site-based assessment 2. Preparing a site for planting 3. Position plants prior to planting 4. Seed sowing in the open ground 5. Establishing new hedge plantings 6. Planting in containers 7. Planting and staking standard trees 8. Labelling.
3	**Plant Propagation:** provides learners with the skills and underpinning knowledge to propagate plants professionally.	1. Environmental conditions 2. Selection and suitability of propagation equipment 3. Selection and sustainability of growing media 4. Propagating plants by seed in containers 5. Propagating plants by vegetative means 6. Equipment for propagation.
4	**Plant Health:** provides the skills to be able to identify and prevent a range of threats to plant health.	1. Ensuring plant health 2. Nutritional deficiencies 3. Monitoring, identifying and controlling pests, pathogens and diseases 4. Implementation of IPM/Garden Health Plans.
5	**Plant Care:** equips learners with the skills and knowledge to be able to implement garden maintenance plans.	1. Following maintenance plans 2. Water management 3. Fertiliser application 4. Staking and supporting 5. Promoting plant health 6. Mulching 7. Weed control 8. Potting off and potting on 9. Green waste management.
6	**Plant Pruning:** equips learners with the horticultural skills and knowledge to be able to prune a range of plants.	1. Principles of pruning 2. Pruning practices 3. Pruning hedges 4. Use and maintenance of hand tools and hedge trimmers.
7	**Garden Features**: provides learners with the skills and underpinning knowledge to be able care for and maintain a wide range of garden features.	1. Principles of maintenance of garden features 2. Timber elements 3. Paved and hard surfaces 4. Plant supports 5. Pond maintenance.
8	**Grassed Areas:** provides learners with the skills required to establish and maintain grassed areas in private and public garden settings.	1. Turf species and seed mixes for different purposes 2. Establishing grassed areas 3. Mowing grassed areas 4. Scarifying/aerating 5. Weed control 6. Maintaining turf health 7. Repairing turf.

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4. Assessment

4.1. Assessment Outcomes

The content covered in each topic of this syllabus specification is expressed in terms of 'Assessment Outcomes' (AOs).

Assessment Outcomes define the way in which learners demonstrate their abilities under test conditions. The AOs use a 'progressive mastery' model for each topic area. This qualification has three broad categories of assessment outcomes, which are:

AO1 – knowledge recall of scientific ideas, processes, techniques, procedures, and making correct use of terms, symbols and units of measurement

AO2 – application of knowledge and understanding of concepts, theories, facts to different situations and contexts through presentation of reasoned explanations and analysis and interpretation of information and ideas

AO3 – application of knowledge and understanding in an integrated and holistic way in order to reach conclusions and make judgements and recommendations.

The relevant content (elements) for each of these AOs is included against each topic area in the topic specifications below. It is therefore clear what is to be covered and the nature of how it will be assessed. Each topic will start with knowledge recall (AO1), progress to application of knowledge to situations (AO2), and ultimately make connections with other relevant topic areas i.e. holistic (AO3). The aim is that those learners who successfully meet all these progressive demands will be able to demonstrate a wide range of skills, and especially the ability to apply what they have learned in practical contexts.

4.2. Assessment methods

A range of methods will be used to assess this qualification. They include formative assessment of skills by tutors at RHS Centres, and a range of summative short answer tests as well as direct observation by RHS Assessors. All assessments must be conducted in accordance with the RHS requirements (see rhs.org.uk/qualifications for more details).

5. Learning Resources

There is a wide range of books, online material and other learning resources published which support the studies of those learning horticulture. RHS Qualifications does not recommend or endorse any specific learning resources as meeting the needs of learners studying for RHS qualifications. Learners are encouraged to seek guidance from their tutors on which learning resources will best support their studies, or to choose the most appropriate resources to support the qualification requirements and their needs from the wealth of material available.

6. Approved Centres

RHS Qualifications can only be delivered by approved centres. Further information regarding the approval process can be found at: rhs.org.uk/qualifications.

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7. Learner Registration

All learners must be registered with RHS Qualifications at the commencement of this qualification through the RHS Qualifications Web Portal. More information about the registration process is available from RHS Qualifications.

8. Reasonable Adjustments and Special Consideration

RHS Qualifications is committed to ensuring fair assessment for all learners, and will facilitate access to RHS qualifications through reasonable adjustments to assessment arrangements for learners with an identified specific need. An example of a reasonable adjustment which could be made is the provision of extra time to complete a test.

Special consideration is given following the examination to learners who are present for assessment, but may have been disadvantaged by temporary illness, injury or adverse circumstances which arose at, or near, the time of assessment**.**

Full guidance is provided in the document 'Guidance to Centres for Reasonable Adjustments and Special Consideration'. The document is available on the RHS website (rhs.org.uk/qualifications), the RHS Qualifications Approved Centre web portal, or can be obtained from RHS Qualifications.

Applications for reasonable adjustments or special consideration must be made by the Approved Centre on behalf of the learner. Application must be made within specified timescales.

9. Fees

For a full list of fees please refer to the RHS Qualifications Fees Notice, which is available on the Qualifications page on the RHS website and on the RHS web portal. All fees are payable at registration on the qualification and prior to confirmation of entry for assessment.

10. Late Entries

RHS Qualifications regularly publishes closing dates for entry for all assessments. Entries submitted after the relevant published closing date will be subject to a late entry fee.

11. Enquiry about Results service

An enquiry about results service is available from RHS Qualifications. Applications must be submitted within the specified number of working days of the results release date. Applications received after this date will not be processed. Detailed information and regulations about this service are available from RHS Qualifications.

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12. Re-mark & Feedback

The fee for a re-mark and feedback is published on the RHS Qualifications Fees Notice. If a re-mark results in an upgrade of the original result, the re-mark fee paid will be refunded.

13. Appeals Procedure

An appeals procedure exists to conduct appeals lodged by learners against decisions made by RHS Qualifications, concerning their examination performance, the granting of an award and/or the closure of their entry to an award on academic grounds.

The procedure is also followed in instances where RHS Qualifications has imposed a penalty on a learner, tutor or invigilator, and where the Centre wishes to appeal against this decision after results are published.

A copy of the procedure is available on the RHS Qualifications web portal and on the RHS website.

14. Replacement Certificate (if lost, damaged or destroyed)

The fee for a replacement certificate can be found on the RHS Qualifications Fees Notice. Requests for a replacement certificate must be sent to the Qualifications Department.

15. Policy on Malpractice and Maladministration

Malpractice consists of those acts which undermine the integrity and validity of the assessment or examination, the certification of qualifications and/or damage the authority of those responsible for conducting the assessment, examination and certification.

RHS Qualifications will not tolerate actions or attempted actions of malpractice by learners or centres in connection with RHS qualifications. RHS Qualifications may impose penalties and/or sanctions on learners or centres where incidents, or attempted incidents, of malpractice have been proven.

A copy of the full policy is available on the RHS Qualifications web portal and on the RHS website.

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Syllabus Specification

The specific detailed content of the syllabus now follows on the following pages. However, learners should have regard to four overarching qualification-wide outcomes:

Qualification-wide outcomes
Health and Safety: • Knowledge and compliance of current legislation as it relates to horticulture • The management of risk within horticulture • The storage, care and maintenance of PPE, tools and equipment in horticultural settings. **Sustainability**: The impact of horticulture on the wider environment, with specific reference to: • Reduction of the negative impacts of horticultural practices • The contribution of horticulture to the three pillars of sustainability (economic viability, social equity and environmental protection). • The concept that horticulture should be net positive, benefitting the wider environment • The impact of horticulture on climate change • The impact of climate change on horticulture. **Best Practice:** • Professional approaches and techniques. • Professional use of named plant species in a wide range of horticultural settings • Horticultural practices which are professional, current, effective and sustainable. • The adoption of trials results, research and development findings. **Equality and diversity:** • Knowledge and compliance with all current legislation as it relates to horticulture • The concepts of respect, fairness, and dignity • Negative impacts of poor practice to include: discrimination, victimisation and harassment • The advantages of inclusive cultures.

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Topic	1
Title:	**Plant Identification**

Topic overview
The identification of plants and the application of scientific naming is a skill required and practiced by all horticulturists. Accurate identification of plant material is crucial to enable horticulturists to communicate effectively, identify cultural requirements and to make sure they are working with appropriate taxa when undertaking practical tasks. This topic, therefore, integrates very widely within this qualification. This topic also introduces learners to a range of plant material from key horticultural categories. It builds on the ability to identify plants by genus, species and cultivar to include plant knowledge relating to growth habits, characteristics and cultivation, thus providing the learner with a holistic plant knowledge.

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Element 1	Plant identification	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Identify plants from the following categories using common name, genus, species and, where appropriate, variety or cultivar: • alpines • annual plants • aquatics • biennial plants • bulbs, corms, rhizomes and tubers • forbs • house plants • perennials • shrubs • trees • wall shrubs and climbers. Identify non-cultivated plants using common name, genus and species.	Select plants to meet the following criteria: • light/shade • hardiness • soil requirements • flowering plants • foliage plants • deciduous/evergreen • scent • fruit • hedges • height/spread • interior landscapes. Advantages and limitations of non-cultivated plants. Apply the terms ephemeral, annual, biennial, perennial, shrub and tree.	The importance of correct plant identification and how it influences cultivation and selection e.g. site suitability, aesthetic benefit. Purposes and uses of plant names in horticultural settings e.g. propagation labels, selection of plants for planting.
Commentary		
The concept of plant identification is introduced at AO1 with learners identifying plant material from specimens. The term non-cultivated plants refers to all plants that may be growing within garden areas that are not intentionally cultivated, for example wild flowers, self-seeded garden plants and weeds. These plants should be recognised as having both positive and negative impacts. AO2 allows learners to apply these plant identification skills to select plants to meet a range of horticultural criteria. AO3 offers learners the opportunity to integrate this knowledge with other topic areas to allow for the development of a holistic plant knowledge. Please note the range of plant material assessed will be listed in an annually updated RHS specimen list.		

Topic:	2
Title:	**Plant Establishment**

Topic overview
Good plant establishment is vital for the long-term success of planted areas in a garden. Plant establishment requires learners to apply a holistic plant knowledge, an understanding of both plant health and plant care. Assessing a site and its characteristics informs plant selection. Good site preparation is a key factor in plant survival, accurate marking out and plant spacing is essential for both aesthetics and plant health. Good planting techniques ensure the long-term success of a scheme. This topic affords the learner the opportunity to develop skills in assessing the relevant characteristics of a site, how to prepare the site for planting and how to set out plants from a scheme. It also covers the skills of establishing planted areas from seed and established plants, in addition to the more specific skills of tree and hedge planting and planting in a range of container types and sizes.

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Element 1	Site-based assessment	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Criteria for site-based assessments, to include: • drainage/water availability • presence of pans/compaction • light/shade • presence of annual/perennial weed • soil health • aspect • existing planting • pH and electrical conductivity (ec) • soil type e.g. textural class, and structural classes.	Assess sites to identify opportunities and limitations, to include: • drainage/water availability • presence of pans/compaction • light/shade • presence of annual/perennial weed • soil health • aspect • existing planting • pH and electrical conductivity (ec) • soil type e.g. textural class, and structural classes. Identify actions to rectify planting site limitations, including: • pruning to allow light in • the breaking up of pans • the removal of weed infestations • the incorporation of organic matter.	Select plant species that will tolerate site conditions that cannot be ameliorated e.g. flooding or wind exposure. The implications of climate change on water management and temperature.
Commentary		
Learners gain an understanding of site assessments in AO1 and then apply this knowledge by carrying out site surveys in AO2, before moving on to suggest ways that site limitations can be mitigated. At AO3 consideration is given to sites where amelioration is not possible along with the impacts of climate change on rainfall patters and temperature. Centres are encouraged to contextualise tasks to meet the needs of learners or to match the facilities available. For example, practical activities can be contextualised to include horticultural settings such as productive growing, or decorative horticulture.		

Element 2	Preparing a site for planting	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Techniques for measuring and marking out sites, to include square, rectangle and circle beds. Acceptable tolerances and the importance of accurate measuring out. Safe working practices when using hand tools e.g. ground conditions, selecting spade size for the user.	Mark out sites to include square, rectangle and circle beds. Prepare sites for planting, to include: • the selection of appropriate tools • the assessment of tool condition • single digging • base dressing • incorporation of soil improvers • raking and levelling • the production of a tilth suitable for planting. Prepare planting site using minimal cultivation principles. Maintain (including sharpen), clean and store hand tools.	Monitor for the presence of soil pests, perennial weeds, poor / inappropriate cultural practices and other issues that impact on plant health.
Commentary		
AO1 introduces learners to the concepts involved in measuring and marking out sites, along with tolerances that are acceptable. In AO2 learners apply these concepts and develop the skills involved in measuring and marking out. Safe and professional working practices are developed for primary cultivations/final preparations of a site for planting, while at AO3 consideration is given to the wider aspects of monitoring soil health and ensuring the needs of individual plant species are being met. Centres are encouraged to contextualise tasks to meet the needs of learners or to match the facilities available. For example, practical activities can be contextualised to include horticultural settings such as productive growing, or decorative horticulture.		

Element 3	Position plants prior to planting	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Techniques for positioning plants prior to planting, to include: • interpreting plans • the concept of scale • plant quality assessment • pruning plants • final checks (spacings, quantities).	Position plants prior to planting, to include: • assessing plant quality • pruning plants • checking plant quantities and spacings • adjust plant spacings e.g. to suit site conditions or plant availability.	Assess plant health and identification when positioning plant prior to planting. The implications of different planting positions on plant health, establishment and growth.
Commentary		
AO1 covers the concept of setting out a planting area from a plan and includes aspects such as assessing the quality of plants and pruning of plants prior to planting, to aid in establishment. Please note: learners do not need to have been involved in the production of the plan used. In AO2 learners apply the concepts by carrying out the task in a practical setting, solving routine site-based issues e.g. adjusting spacings based on the site and number of plants available. At AO3 considerations such as plant health status are covered. Centres are encouraged to contextualise tasks to meet the needs of learners or to match the facilities available. For example, practical activities can be contextualised to include horticultural settings such as productive growing, or decorative horticulture.		

Element 4	Seed sowing in the open ground	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Methods for creating seed beds and the relationship between tilth and the size of seeds. Considerations when selecting seeds to sow, to include: • densities and depth • soil/growing media • temperature • seed quality • provenance • tilth • aftercare. Impacts of poor practice on seed germination and establishment.	Use hand tools to create a level site with a suitable tilth for seed germination. Use a garden line to set out seed drills. Sow small, medium and large sized seeds. Sow seed: • in rows • by station sowing • by broadcasting in the soil.	Factors that impact on sowing seed in the open ground e.g. identification of weed seedlings and the incorporation of techniques such as stale seedbeds to reduce weed competition.
Commentary		
AO1 introduces learners to the underpinning knowledge and concepts relating to establishing plants by seed. These concepts are applied in AO2 where learners create a seedbed, and then sow a range of seeds. (Please note, topic 3.4 covers the sowing of seeds in containers.) At AO3 a more holistic overview of seed sowing in open ground is considered. Centres are encouraged to contextualise tasks to meet the needs of learners or to match the facilities available. For example, practical activities can be contextualised to include horticultural settings such as productive growing, or ornamental and environmental horticulture.		

Element 5	Establishing new hedge plantings	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Requirements for hedge planting, to include: • plant species • plant specification • spacings (single, double, staggered rows) • use of guards/tubes/anti-transpirant sprays • water management.	Calculate plant quantities required for a run of hedging. Plant bare root or container-grown hedging plants using hand tools, including a garden line. Consolidate soil and provide immediate aftercare to new plantings, including any pruning required and the fitting of guards/tubes.	The environmental benefits of hedges in comparison to other types of boundaries e.g. fence. The importance of selecting the correct plant species for a hedge, depending upon purpose e.g. formal hedge, biodiversity and impact on adjacent properties. Benefits of assessing soil and plant heath prior to planting hedges.
Commentary		
At AO1 learners are introduced to the underpinning knowledge and concepts relating to hedge planting, which includes the selection of appropriate species, the specification of whether plants should be bare root or containerised, spacings, use of guards and water management. This includes both the concepts of drainage and irrigation. At AO2 where learners calculate the quantities of plant material required, prepare the site for planting and carry out the planting to include the immediate aftercare. At AO3 learners consider suitable species for hedges, the benefits of hedges over fences from a biodiversity perspective, along with carrying out health checks on the planting material. Centres may add context, choosing to plant either formal or informal hedges.		

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Element 6	Planting in containers	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Considerations when selecting containers and growing media e.g. drainage (containers) Air Filled Porosity (growing media). The positioning of plants: • planting densities • planting depths. Environmental consequences of container and growing media selection.	Create a planted container, to include: • container selection • growing media selection. Suitable plants for the container, to include: • purpose • design • maintenance • location. Create a planted hanging basket, to include: • container selection • growing media selection • use of appropriate sustainable liner. Suitable plants for the hanging basket, to include: • purpose • design • maintenance • location.	Wider considerations when planting containers and hanging baskets, to include: • species selection for character, growth • environmental implications of container and growing media type • final location, irrigation / impact of shade / light / rain shadow on growth. Sustainability impacts e.g. water usage including water retaining gels. The impacts of controlled release fertilisers.
Commentary		
At AO1 learners are introduced to the underpinning knowledge / concepts which are applied in AO2 where candidates plant containers, line and plant a wire hanging basket. At AO3 consideration is given to the selection of plants, their health status and the environmental implications of growing media selection. Further sustainability impacts are explored within AO3 including the move away from using water retaining gels, and the impacts of using resin / plastic bound fertilisers with reference to the reduction in the use of single use plastics. Centres may add context to the planting of containers and hanging baskets, producing edible baskets and crops in pots, or ornamental and environmental horticultural alternatives.		

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Element 7	Planting and staking standard trees	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Techniques for tree planting. Tree support and protection systems, to include: • orientation • height at point of attachment • method of attachment. Risks and mitigating actions for planting trees adjacent to properties.	Plant a standard tree, to include: • depth of planting • positioning • support and protection systems • techniques to reduce the need for irrigation • water management.	Wider tree planting issues, to include: • ecosystem services provided by different species • plant health implications of different staking systems • planting techniques suitable for different stock sizes • implications of plant specifications on planting e.g. bare root, container grown.
Commentary		
AO1 covers the underpinning knowledge / concepts relating to tree planting which are applied in AO2 where learners plant, protect and stake a standard tree. At AO3 considerations are given to wider aspects, such as biodiversity, plant health, planting techniques and the implication of plant specification on the planting process. Centres may add context choosing to plant either standard fruit trees, or ornamental trees.		

Element 8	Labelling	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Purpose of plant labels within living collections. Labelling conventions for living collection management, to include: • origin • family • accession number • Award of Garden Merit (if appropriate) • genus • species • cultivar. Propagation labelling conventions, to include: • plant name • date of sowing. Attributes of suitable plant label e.g. longevity, avoidance of single use plastics.	Create plant labels. Interpret plant labels, to identify and explain the information contained. The implications of poor labelling practices.	Role of the accession number to link the plant to detailed information e.g. source, plant health assessments.
Commentary		
The purpose of this part of the syllabus is to enable learners to label plants following professional conventions. It also allows the learner to interpret the information used in formal living collections. AO1 covers labelling conventions with AO2 applies this knowledge to create and interpret labels, while also considering the implications of poor labelling practices. At AO3 the use of labels in the management of plant health is considered.		

Topic:	3
Title:	**Plant Propagation**

Topic overview
This topic introduces learners to the facilities, the equipment and the skills involved in the propagation of a wide range of plant material. Plant propagation is a core horticultural skill, allowing the horticulturist to raise new plant material, either from seed or by vegetative means, including cuttings and division. Successful propagation relies on the facilities available, the quality of the propagation material, the skills of the horticulturist and a thorough understanding of plant health, which is considered in topic 4. This topic will enable the learner to develop both skills and knowledge in the provision of a rooting environment to meet the needs of the species being propagated, the collection and the preparation of cuttings, the sowing of seed, the pricking out of seedlings, the handling and insertion of propagules, along with the maintenance and use of tools and equipment.

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Element 1	Environmental conditions	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Impact of environmental conditions on propagation, to include: • maintaining turgidity of cuttings material • relative humidity • light • air temperature • rootzone temperature • hygiene.	Measure, record and control environmental conditions for propagation and plant health, to include: • light/shade • temperature • ventilation • relative humidity. Interpret environmental data to identify issues with propagation and make recommendations for improvements.	Wider implications of propagation environment on plant health for different species.
Commentary		
AO1 covers the underpinning knowledge / concepts relating to the environmental conditions necessary to propagate plants. AO2 builds on these concepts allowing learners to develop the skills to be able to monitor and control light, temperature, ventilation and relative humidity, while AO3 considers the interaction between environmental factors, species requirements and plant health.		

Element 2	Selection and suitability of propagation equipment	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Types of propagation equipment appropriate for a small-scale unit, to include: • rootzone heating • misting • fogging • light • ventilation • heat.	Specify facilities and equipment for a small propagation unit. Specify a maintenance programme for small-scale propagation facility.	The benefits of propagation facilities for success rates, efficiency, running costs and energy usage and impacts on sustainability. The benefits of hygiene and professional working practices for plant health and success rates.
Commentary		
AO1 identifies the range of equipment available, for example a simple mist propagation unit. AO2 builds on this knowledge with learners creating a specification for a small propagation facility, along with a maintenance programme required to keep this facility operational. The benefits provided by propagation facilities, the running costs, the energy usage and sustainability implications along with the benefits of hygiene protocols are considered in AO3 Please note: the facilities implied by this element are to provide a small-scale propagation unit.		

Element 3	Selection and sustainability of growing media	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Growing media requirements for named plants. Sustainability factors affecting the choice of growing media, to include: • minimisation of greenhouse gas emissions • use of peat • transporting bulk constituents e.g. coir • single use plastics e.g. those used in controlled release fertilisers.	Select growing media to meet requirements, to include: • sustainability • plant species • purpose.	The impact of different growing media on plant health and development, to include: • sterility • pH • anchorage • root access • air filled porosity • water management • drainage • nutrition e.g. electrical conductivity.
Commentary		
AO1 considers the selection of growing media to the needs of the plant, along with the environmental impacts of growing media selection. At AO2 learners select appropriate growing media, justifying their selection by considering the ways that the growing media meets the needs of the plant, and minimises environmental damage. AO3 integrates with topic 4 to consider the impact of growing media selection on plant health.		

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Element 4	Propagating plants by seed in containers	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Methods for propagating plants from seed in containers. Seed viability, its importance and influencing factors e.g. storage conditions. Factors impacting on seed germination, emergence and establishment rates, to include: • seed e.g. viability, dormancy • growing media • container selection • sowing depth • seed density • plant handling • pricking out depth • irrigation • aftercare e.g. weaning.	Propagate plants by seed in containers. Provide aftercare to seed. Prick out seedlings, to include: • stage of growth • plant handling • depth of planting. Provide aftercare to pricked out seedlings.	Factors that influence seed viability, to include: • harvesting • handling • treatment • storage. The importance of seed provenance in relation to climate change.
Commentary		
AO1 introduces learners to a number of key factors to ensure that seed sowing is successful. At AO2 learners develop skill in the propagation of plants by seed, while also demonstrating an applied understanding of AO1 by specifying how the factors that affect germination can be managed by the horticulturist. AO3 considers the factors that can affect seed viability, including the harvesting of seed, the correct practices to be observed when handling seed to avoid damage, the cleaning of seed, to include the removal of hairs and detritus, the use of seed coatings and the storage conditions necessary to preserve seed viability. AO3 also considers the area of provenance, with particular reference to the importance of provenance on selecting species to cope with the impacts of climate change. Please note: the sowing of seed in open ground is covered in Topic 2.4, and this element can be contextualised by centres within any horticultural setting.		

Element 5	Propagating plants by vegetative means	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Methods for propagating plants by vegetative means including cuttings and division. Cutting types and techniques, to include: • softwood • semi ripe • hardwood • leaf lamina • leaf petiole. The importance of aftercare for cuttings. The propagation of plants by division, to include: • suitable species • timings • critical success factors. Concepts of grafting and micropropagation.	Propagate plants by cuttings, to include: • the collection of parent material • taking and inserting cuttings (leaf lamina, leaf petiole, softwood, semi ripe and hardwood) • the insertion of propagules • the aftercare of propagules, e.g. weaning. Propagate plants by division, including aftercare.	Factors influencing successful propagation, to include: • stock beds/mother plants • stock plant health • timing of collection • presence of pest, disease and pathogens • the importance of material being true to type • the storage of material to ensure maximum water content. Circumstances when a virus might be desirable in cutting material. Biosecurity measures in a propagation facility.
Commentary		
AO1 covers the key concepts relating to propagating plants by vegetative means, with AO2 allowing candidates to develop skills relating to propagating plants by cuttings and division. AO3 integrates wider issues which impact on successful propagation, the deliberate inclusion of virus on some plant species, along with introducing learners to biosecurity measures.		

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Element 6	Equipment for propagation	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Hand tools used for propagation, to include: • presser boards • sieves • compost scoops • striking boards • knives • secateurs.	Select hand tools for propagating plants. Maintain hand tools including sterilisation, cleaning and sharpening, to include: • knives • secateurs. Bench management and hygiene.	The role of hand tools in the spread of pests, diseases and pathogens and techniques to prevent transmission.
Commentary		
AO1 covers the range of hand tools used in propagation. AO2 allows learners to select, use and maintain hand tools, to include knife and secateurs sharpening skills. At AO3 the role of hand tools in the spreading of pest and pathogens is considered alongside biosecurity controls. Please note: centres are reminded of the overarching assessment outcomes relating to health and safety, risk management and professional practice.		

Topic:	4
Title:	**Plant Health**

Topic overview
To manage plants within gardens and designed landscapes, horticulturists need to identify all the factors that can negatively impact on plant growth. This topic considers the attributes of a healthy plant, before moving on to consider the many different factors that can impact on plant health. The identification, monitoring and the control of these factors are considered along with the impact of controls on the wider environment. Monitoring the factors that cause poor health status requires the horticulturist to be able to diagnose nutritional deficiencies and to identify a range of plant pests and pathogens. The role of husbandry, cultivation practices and the use of formal models are considered to manage plant health.

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Element 1	Ensuring plant health	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Characteristics of a healthy plant. Factors that influence plant health including environment, plant husbandry and plant selection. Techniques for ensuring plant health, to include: • resistant cultivar selection • encouraging natural predators • physical plant protection • competition • correct pruning techniques • control of pests and pathogens. Impact of biosecurity on horticultural practices. Impact of chemical controls on plant health.	Identify remedial actions to correct the results of poor husbandry practices, to include: • water and nutrient management • planting practices • pruning • introduction of infected wood products • inadequate biosecurity and hygiene.	The value of maintenance schedules and garden health plans, to include: • identification of natural predators at key lifestyle stages • use of cultivars that are resistant to plant health problems • identification of alternative hosts for pests and diseases • identification of pruning practices that could damage plant health. The wider environmental impacts of pesticide usage.

Commentary

AO1 introduces the concept of plant health by considering the characteristics of a healthy plant, prior to identifying the factors that can contribute to good plant health. At AO2 learners are offered the opportunity to identify remedial actions.

At AO3 learners are offered the opportunity to consider the ways that maintenance schedules can be used to enhance and resolve plant health issues. The concept of garden health plans is introduced. The wider environmental impact of all UK-approved garden chemicals is considered in AO3, including those certified for use in organic growing, for example, the impacts of neonicotinoids on pollinators, the impacts of chemicals on aquatic life. When learners refer to a chemical, it should be through reference to active ingredient rather than product name.

Please note: garden health plans consider the entire range of potential impacts on plant health, while considering the mitigations that can be carried out to manage these threats. Integrated Pest Management is a component part of a garden health plans, along with the management of other abiotic factors.

Garden maintenance plans consider, on an annual basis, the tasks that are required to ensure the garden area or feature is maintained to a high standard. They would include pruning, weed control, and fertiliser regimes among other considerations appropriate to the area being managed.

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Element 2	Nutritional deficiencies	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The principles of plant nutrition including the basic role of plant nutrients. Fertiliser terminology, to include: • straight • compound • powder • granules/prills • controlled release Fertiliser application methods, to include: • top dressings • base dressings • liquid feed • foliar feed • fertigation. Formulation of fertilisers, to include analysis of NPK content.	Identify nutrient deficiencies, to include: • macronutrients: nitrogen, phosphorus, potassium, calcium, sulphur, magnesium • micronutrients: iron, boron, manganese, and molybdenum. Remedy nutrient deficiencies, to include: • macronutrients: nitrogen, phosphorus, potassium, calcium, sulphur, magnesium • micronutrients: iron, boron, manganese, and molybdenum • mix and apply liquid feeds • calculate application rates for fertilisers based on NPK analysis and manufacturers recommendations.	The benefits of organic principles for meeting plant nutrient needs in a range of horticultural settings. The negative environmental impacts of fertilisers, including over application, extraction, manufacture e.g. carbon footprint, transport and run off.
Commentary		
AO1 introduces the concept of plant nutrition, along with the terminology and application methods appropriate to the use of fertilisers. The basic formulation of fertilisers is included, which allows learners to understand the strength of different fertilisers, to allow them to judge the environmental impacts of fertiliser usage within AO3. At AO2 learners identify and remedy nutrient deficiencies, while at AO3 the benefits of organic growing principles are considered. Please note: centres are reminded that they can apply context to these assessment outcomes, relating this element to turf and the care of grassed surfaces, decorative horticulture or productive horticulture settings. Please note: This element links to Topic 5 element 3		

Element 3	Monitoring, identifying and controlling pests, pathogens and diseases

AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Identify common plant pests, at different horticulturally significant lifecycle stages. Identify the damage / residue caused by common plant pathogens.	The impact of plant pests and pathogens on plant health e.g. reduced photosynthetic efficiency, interruption of transpiration stream.	The value of regulated organic and traditional growing systems to control pests, pathogens and diseases while enhancing sustainability including propagation, plant establishment, plant care and pruning.

Commentary

AO1 introduces learners to the identification of a range of common pests and pathogens. While the key horticulturally significant lifestyle stages of pests should be identified (e.g. cabbage white butterfly eggs, caterpillar and adult), learners are not expected to have a detailed entomological knowledge of lifecycles.

At AO2 the impacts of pests and pathogens on plant growth are evaluated, and AO3 considers how pests, diseases and disorders are controlled within an organic or traditional setting.

The annually updated RHS specimen list will include a range of pest species.

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Element 4	Implementation of IPM / Garden Health Plans	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The purpose of garden health plans to determine the correct procedures to manage plant health in a garden situation.	Interpret garden health plans to determine the appropriate response to a plant health issue.	The impact of garden health plans on horticultural operations, to include: • plant propagation • establishment • plant care • pruning.
Commentary		
AO1 introduces learners to the concept and purpose of garden health plans, while at AO2 garden health plans are consulted to determine appropriate responses to plant health issues. At AO3 the wider impact of garden health plans on other topic areas is considered. Please note: garden health plans consider the entire range of potential impacts on plant health, while considering the mitigations that can be carried out to manage these threats. Integrated Pest Management is a component part of garden health plans, along with the management of other abiotic factors.		

Topic:	5
Title:	**Plant Care**

Topic overview
This topic introduces learners to the care and maintenance of plants within gardens and designed landscapes. The care of plants often involves the use of garden management and maintenance plans along with the development of cultural practices that enhance plant growth. The role and the use of such plans is introduced to learners within the topic, along with other key areas including the irrigation, feeding, staking and supporting of plants. The interrelationship between plant care and plant health, the management of weed populations, the use of mulching, along with the potting of plants and the management of green waste are investigated within this topic area.

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Element 1	Following maintenance plans	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Purpose of maintenance plans to inform the care of garden areas.	Interpret maintenance plans. Use maintenance plans to inform horticultural actions.	The advantages of garden maintenance plans in relation to: • soil management regimes • plant establishment • the care of grassed areas • the maintenance of garden features • the maintenance of garden areas • timing and method of pruning.
Commentary		
This concept is introduced at AO1, applied at AO2 and integrated with other topic areas at AO3. Please note: garden maintenance plans consider the tasks that are required on an annual basis to ensure the garden area or feature is maintained to a high standard. They include pruning, weed control, and soil management regimes, along with other considerations appropriate to the area being managed.		

Element 2	Water management	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Methods to reduce the need for irrigation to include: • specification of plant species • planting density • plant size. The factors that trigger the requirement for irrigation e.g. observation or soil tensiometer readings. The impact of different growing media on irrigation requirement. Irrigation systems, to include: • watering cans • seep hose • microbore • sprinklers • pop up systems • reservoirs in containers. The concept of fertigation and its impact on the reliability of irrigation systems.	Identify water requirements for plants Irrigate plants The advantages and limitations of different irrigation systems, to include: • watering cans • seep hose • microbore • sprinklers • pop up systems • reservoirs in containers.	The interactions between site, container size, planting density, type of plant, growing media / soil type and irrigation requirement. The signs of water stress in a range of plants to include factors such as wilting, foliage colour.
Commentary		
AO1 starts with the importance of correct plant selection for the site to reduce the water footprint of plantings, prior to introducing learners to the range of irrigation systems that are commonly used within professional horticultural settings. The concept of fertigation as the injection of liquid fertiliser into an irrigation system is also included at AO1. This knowledge is applied at AO2 allowing learners to apply the skills and knowledge to be able to make irrigation decisions based on water status and plant species. Candidates should be able to irrigate as per a plant's requirements, and understand the advantages and limitations of different irrigation systems. At AO3 the influence of factors such as growing media and container size on irrigation frequency are considered, along with the signs of water stress within plants. The concept of taking irrigation requirements into account in plant selection, the impact of withholding irrigation on depth of rooting and building drought resistance are also considered within AO3.		

Element 3	Fertiliser application	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The reasons for the uses of fertilisers in horticulture. The timings of fertiliser applications. The impact of incorrect fertiliser usage on the plant and the environment.	Application rates for granular fertilisers based on analysis and manufacturer's recommendations. Apply granular fertiliser as a base dressing.	Select fertilisers for different horticultural contexts e.g. propagation, turf.
Commentary		
The reasons for the use of fertilisers are considered at AO1, with the application rates to calculate quantities required in AO2, along with the application of granular fertilisers as base dressings. At AO3 the selection of fertilisers for specific purposes is considered, allowing the integration of this area into other topic areas. Please note: This element links to Topic 4 element 2		

Element 4	Staking and supporting	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Purpose of plant support systems e.g. aesthetics, improved cropping. Range of plants that require support, along with training techniques, and appropriate methods of support. Types of plant support systems, their advantages and limitations, to include: • herbaceous plant support systems • productive growing support systems • climbing plant support systems.	Install support systems for plants.	Factors that inform the maintenance of plant support systems, to include: • plant species • timing and method of pruning • wider maintenance of garden features.
Commentary		
AO1 considers the purpose and range of plant support systems. Advantages and limitations can include closed circle practices such as growing hazel for plant support within the garden, the impacts of buying in timber and canes and the avoidance of single use plastics, for example netting. In AO2 learners install support systems, which are appropriate to both plants and the horticultural setting. AO3 considers factors that inform maintenance of systems while integrating with other topic areas, for example Pruning and Garden Features. Please note: centres are reminded that they can add context by choosing to apply this element to a wide range of horticultural settings including productive, ornamental and environmental.		

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Element 5	Promoting plant health	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Cultural situations that can impact on plant health e.g. dense weed / seedling growth, crowding. Implementation of garden management plans to manage plant growth and prevent overcrowding.	Identify situations likely to impact plant health e.g. dense weed / seedling growth, crowding. Resolve situations likely to impact on plant health e.g. dense weed growth, crowding.	The impact of poor cultural practices on plant health e.g. increased likelihood of pests and pathogens.
Commentary		
AO1 identifies cultural situations which may impact on plant health, with AO2 allowing learners to identify situations that are likely to impact on plant health, prior to carrying out remedial actions. AO3 considers the wider principles of poor cultural practices on plant health. Please note: centres are reminded that they can add context by selecting productive growing, or ornamental or environmental settings including mixed borders, shrubs and trees. Please note: the use of garden management plans to inform horticultural operations is embedded in AO1. At Level 2 learners interpret such plans to inform maintenance decisions.		

Element 6	Mulching	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The benefits of mulching. The use of weed membranes The advantages and limitations of different mulching materials including organic and inorganic.	Apply mulches, to include: • selection of materials • depth • proximity to plant stem. Calculate quantities of mulching materials required. Calculate costs of different mulching materials per m^2.	The negative impacts of incorrectly applied mulches on plant health. The impacts of membranes in generating microplastics.
Commentary		
AO1 considers the overall advantages and limitation of mulching, along with identifying the range of materials that can be used as mulches. In AO2 learners apply mulches, calculating quantities and costs. At AO3 the wider negative impacts of incorrectly applied mulches on plant health are considered. Please note: centres are reminded that they can add context by applying mulches in productive or ornamental or environmental settings.		

Element 7	Weed control	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The setting of horticultural standards e.g. when weeds are acceptable and when they are not. Principles of weed control. How control measures exploit vulnerabilities in weed lifecycles / plant biology. Control measures for annual weeds, to include: • hand / mechanical weed control e.g. the use of a hoe • mulching • stale seedbed • heat treatment • chemical controls. Control measures for perennial weeds, to include: • hand / manual weed control • mulching • chemical controls. Implications of legal restrictions on the disposal of arisings e.g. waste carriers' licenses, double bagging.	Control weed infestations, using hand / mechanical control. Specify control measures and legal considerations to include: • *Elymus repens* • *Aegopodium podagraria* • *Calystegia sepium* • *Fallopia japonica* • *Equisetum arvense* • *Heracleum mantegazzianum*	Adapt weed control methods depending upon site and horticultural situation e.g. seed propagation, turf, management of paths and paved areas. The benefits of weeds to include: • Biodiversity impacts • Ecosystem services • Coverage of soil.
Commentary		
AO1 considers the principles of weed control, investigating why these methods are effective and how they exploit identified weaknesses in plant lifecycles or plant biology. AO2 offers learners the opportunity to develop their weed control skills, while at AO3 the selection of the most appropriate method for a range of horticultural contexts is considered, along with the benefits of weeds. Please note: learners should not be involved in chemical control, but they should have an understanding of the concepts, including contact, residual and translocated modes of action. Centres are reminded that they can add their own context to the hands on weed control involved in AO2.		

Element 8	Potting off and potting on	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The purpose of potting off and potting on of plants. Techniques for potting off / on and their effect on the plant, to include stage of growth.	Pot off / on plants to include selection of containers and growing media.	Negative plant health impacts of incorrect potting techniques e.g. contamination or inappropriate selection of containers. Impacts of container and growing media selection on the wider environment.
Commentary		
AO1 considers the purpose of potting, to include the identification of the optimum stage of growth. At AO2 learners develop their potting skills, while at AO3 the wider impact of potting is considered in the context of plant health and sustainability. Please note: centres are reminded that they can add context through the selection of plants for potting on. For example, choosing tender vegetables/tomatoes in a productive setting, or trees/shrubs/perennials in a more ornamental or environmental setting.		

Element 9	Green waste management	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The benefits of composting green waste. The principles of green waste management, to include: • cold composting • hot composting • vermi-composting • bokashi composting. Traditional composting considerations, to include: • the management of perennial weeds • ensuring optimum carbon:nitrogen ratios.	Manage a composting system to include: • apply waste to a compost heap • turn a compost heap. Identify and resolve composting problems, to include: • incorrect oxygen levels • incorrect moisture levels • incorrect temperature range • slow breakdown of material • weed seeds present in final compost • management of leachate.	The advantages and limitations of composted green waste to support garden maintenance processes. The potential impacts of composted green waste on plant health.
Commentary		
AO1 introduces learners to the benefits and processes of composting green waste within a garden setting. At AO2 learners develop skill through management of composting systems, including the resolution of issues such as incorrect moisture levels, or the slow break down of material. At AO3 learners consider the advantages and limitations of composted materials within the garden or designed landscape, along with the potential impacts of composted green waste on plant health.		

Topic:	6
Title:	**Plant Pruning**

Topic overview
The pruning of plants is an important horticultural skill which is used to maintain plant health, vertical boundaries, ensure productivity in cultivated fruit and which can be used to maintain shape and habit of ornamental plants. This unit introduces learners to the principles of pruning, considering the purpose, the impacts and the timing of pruning on plant growth and biodiversity. Legal considerations when planning pruning, along with the disposal of arisings are also considered. Learners will develop skills in pruning, with specific reference to positions of cuts and the plant health impacts. Learners will also develop skills relating to pruning hedges using both shears, and powered hedge trimmers. The unit also considers the care, maintenance and sharpening of pruning tools and equipment.

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Element 1	Principles of pruning	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Purposes of pruning, to include: • control of size • improved air flow • improved shape • increased flowering • improved fruit development • flowering on current year's growth • flowering on older wood • stem colour (winter stems). Principles of pruning, to include: • cut positioning • plant health • structure • aesthetics • time of the year • desirable growth response. Legal requirements and compliance when planning or carrying out pruning, to include: • working at height regulations • Wildlife and Countryside Act 1981 • Town & Country Planning Act 1990. (Tree Preservation Orders) • Planning (Listed Buildings and Conservation Areas) Act 1990. (Conservation Areas). Pruning techniques to support biodiversity, to include: • provision and protection of habitats • promotion of food availability • disposal of arisings.	Identify pruning requirements for planted areas to meet planting purpose, species needs, and biodiversity requirements, including timing of works and techniques to be used.	The importance of species identification for selection of suitable pruning practices. Techniques for management of arisings and their plant health implications, sustainability and protection of associated structures and features, the impacts of burning arisings on air quality. The role of pruning practices in wider gardening approaches on biodiversity e.g. the retention of dead wood. Advantages and limitations of Tree Preservation Orders on the management of tree health / maintenance.
Commentary		
In AO1 learners are introduced to the purpose of pruning with particular reference to the principles of pruning, the legal considerations and the impacts of pruning and disposal of arisings on biodiversity. In AO2 learners are able to identify the pruning requirements for planted areas. In AO3 a more holistic approach is taken with learners applying their knowledge of pruning principles to other topic areas.		

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Element 2	Pruning practices	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Pruning techniques required to ensure the healthy growth of a range of plants, shrubs and trees, to include: • dead wood removal • diseased wood removal • damaged wood removal • duplicated wood removal. Pruning systems, to include: • formative • regenerative • maintenance • coppicing/stooling • specialist.	Survey plant and surroundings prior to pruning, to include: • condition of features when pruning e.g. walls, trellis, presence of wasps/potential hazards. • monitoring health of plants e.g. pests, nutritional deficiencies • suitability of plant to site and actions that might be required e.g. move, root prune. Make pruning cuts on a range of plant material using a range of hand tools, to include: • secateurs • loppers • pruning saws.	Management of arisings including plant health implications, sustainability and protection of associated structures and features. The impact of pruning practices on biodiversity.
Commentary		
At AO1 learners develop a knowledge of a range of pruning techniques that are required to manage a range of garden plants. At AO2 learners carry out pre pruning surveys and report on findings prior to making pruning cuts which are accurate and appropriate to the plant species. At AO3 wider considerations are considered which integrate with other topic areas. Please note: learners within this topic will carry out pruning but must not be asked to work at height.		

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Element 3	Pruning hedges	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Purpose and functions of hedges within gardens and designed landscapes. Situations where formal or informal hedge pruning is required. Advantages and limitations of plant species for use in formal or informal hedges.	Prune hedges using shears and powered hedge trimmers.	The role of hedges as hosts for plant diseases e.g. fireblight or mildew.
Commentary		
AO1 covers the purpose and function of hedges within gardens and designed landscapes, the situations where formal and informal pruning is required along with the advantages and disadvantages of different plant species for use in hedging. AO2 applies these principles in a practical setting with learners using shears and powered hedge trimmers (professional) to maintain hedges. AO3 considers the role of hedges as hosts for plant diseases. Please note: learners within this topic will carry out pruning but must not be asked to work at height.		

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Element 4	Use and maintenance of hand tools and hedge trimmers	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Characteristics, purpose, and maintenance requirements of hand tools.	Sharpen, clean, sterilise and lubricate hand tools.	Control measures to prevent the spread of pests, diseases and pathogens when using hand tools. Situations where plant health control measures are critically important e.g. arisings used as propagation material.
Commentary		
AO1 identifies and outlines the maintenance required for hand tools involved in pruning, while AO2 allows learners to develop their skills in sharpening cleaning, sterilising and lubricating hand tools, such as hand shears (the maintenance and sharpening of powered hedge trimmers is not part of this element, however the sterilising and after use cleaning is part of this element.). AO3 considers wider contexts such as plant health considerations when using hand tools.		

Topic:	7
Title:	**Garden features**

Topic overview
Horticulturists do not just care for the plants within gardens and designed landscapes; they also care for and maintain a wide range of garden features. These features include timber elements, paved elements, plant supports and ponds. Learners will develop knowledge and skills to inspect, clean and maintain features, along with reporting back on their condition.

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Element 1	Principles of maintenance of garden features	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Use of maintenance plans to schedule routine works on garden features. The importance of reporting unsafe garden features and preventing access to the area.	Interpret garden maintenance plans. Visual inspection of garden features to identify areas which are unsafe. Identify criteria where and when specialist skills are required to carry out maintenance.	Impacts of extending the life of garden features on sustainability.
Commentary		
The concept of maintenance plans, which are considered in other topic areas, is considered at AO1 and applied to the planned maintenance of garden features, with learners at AO2 interpreting such plans. Learners also identify where the skills of a professional are required to maintain health and safety, or where specialist techniques or tickets are required to comply with current legislation, for example the use of abrasive wheels when removing pointing for repair. At AO3 the impacts of maintaining garden features are considered from a sustainability context. Please note: garden maintenance plans consider, on an annual basis, the tasks that are required to ensure the garden area or feature is maintained to a high standard. They would include pruning, weed control, and fertiliser regimes among other considerations appropriate to the area being managed.		

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Element 2	Timber elements	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The use of timber features in the garden including fences, pergolas and trellis The maintenance requirements of timber elements, to include: • condition checks • cleaning • application of treatments.	Visual inspection of timber elements to inform maintenance / replacement decisions. Maintain timber elements including cleaning and the application of preservatives / treatments.	Sustainability and biodiversity impacts of timber fences in comparison with hedges.
Commentary		
In AO1 learners are introduced to the maintenance requirements of timber elements in the garden, while at AO2 learners carry out maintenance tasks, with AO3 considering the wider impacts of timber elements on sustainability and biodiversity.		

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Element 3	Paved and hard surfaces	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The maintenance requirements of paved and hard surfaces, to include: • routine repairs and maintenance e.g. repairing pointing and unstable slabs • control of algae and weed control, including abrasive methods / brushing manually or mechanically • resealing paving / decking after pressure washing.	Visual inspection of paths and hard surfaces. Control algae and weeds on paved surfaces and paths.	The impact of maintenance activities on the site e.g. cleaning products for paths and surfaces and plant health. The impact of wider site practices on paved and hard surfaces e.g. overgrown vegetation / shading on growth of surface moss and algae.
Commentary		
At AO1 learners are introduced to the maintenance requirements of paved and hard surfaces. The scope of knowledge in routine repairs is limited to rebedding a loose paving slab, and raking out and replacing pointing. A knowledge of cement and concrete mixes is not required. At AO2 learners carry out maintenance on paved and hard surfaces. This could include controlling algae and controlling weeds by either manual or mechanical methods. At AO3 other topic areas are integrated to consider their respective impacts on maintenance requirements.		

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Element 4	Plant supports	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The maintenance requirements of plant supports such as trellis, tree stakes and wires to include condition checks, and the removal of plant material for replacement.	Visual inspection of plant supports. Maintain plant supports to include the removal of overgrown plant material. Identify works that require professional maintenance.	Impact of plant supports on plant health, sustainability and pruning.
Commentary		
At AO1 learners are introduced to maintenance requirements for plant supports, while at AO2 learners carry out these activities and identify works that require professional maintenance. At AO3 the broader impact of the maintenance activities is considered on plant health, sustainability and pruning. Please note: learners within this element must not be asked to work at height.		

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Element 5	Pond maintenance	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The maintenance requirements of ponds, to include: • maintenance schedules • weed control • removal of silt and debris • check / clean pumps, fountains and filters.	Interpret a pond maintenance schedule. Impact of maintenance activities on biodiversity.	The importance of identifying aquatic plants for correct maintenance. The impact of site maintenance practices on ponds e.g. fertiliser regimes.
Commentary		
AO1 introduces the concepts involved in the management of ponds, while AO2 includes interpreting a pond maintenance schedule, with AO3 linking the concepts of pond care across topic areas.		

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Topic:	8
Title:	**Grassed areas**

Topic overview
Grassed areas are a key component of many gardens and designed landscapes. It used to be argued that at their best they can be perfect green swards of pristine horticultural beauty. However current thinking has developed to consider that such grassed areas are at their best when they are rich in wildflowers, creating biodiverse rich green spaces. This topic covers the skills required to establish and maintain grassed areas in private and public garden settings. It will include an understanding of turf species mixes for different purposes, how to establish grassed areas, and maintenance procedures including mowing, scarifying, weed control and maintaining plant health using sustainable practices.

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Element 1	Turf species and seed mixes for different purposes	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Types of grassed areas including: • fine turf • utility lawns • shaded areas • meadows • non-grass ground cover (for example *Chamaemelum, Thymus* and moss) Appropriate species for grassed areas including: • fine turf • utility lawns • shaded areas • meadows • non-grass ground cover (for example *Chamaemelum, Thymus* and moss)	Specify grasses and forbs to meet a range of criteria including fine turf, utility lawns, shaded areas, meadows and non-grass ground cover. Specify grasses and forbs based on intended maintenance regime	The advantages and limitations of traditional lawns and more diverse grass and non-grass surfaces, to include: • environmental impact • biodiversity • function.
Commentary		
AO1 covers the essential knowledge relating to different types of grassed and non-grass ground cover. AO2 requires the learner to specify a range of grasses and forbs to meet a number of relevant criteria, for example a formal lawn where only grass species would be appropriate, through to utility lawns, perhaps in shaded locations and meadows. AO3 considers the wider implications of grassed areas on sustainability.		

Element 2	Establishing grassed areas	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Considerations when establishing grassed areas, to include: • soil conditions • soil fertility • suitable tilth • levels • settling of soil • ensuring even seeding • reducing turf shrinkage • aftercare procedures for a newly sown or turfed lawn, from sowing/laying to first cut. Irrigation requirements of new turf.	Rake, consolidate and level a site for seeding or for laying turf. Sow seed to a specified density. Lay lawn turf. Irrigate newly laid turf.	The similarities and differences between ground preparation and seed sowing for grassed areas, compared to other horticultural situations. Sustainable use of water during establishment and over the life of the lawn.
Commentary		
AO1 covers the key criteria for the establishment of grassed areas, whilst at AO2 learners develop the skill of seeding and turfing grassed areas. AO3 relates these operations to other horticultural practices considering key similarities and differences in approach, thus integrating this topic with other topic areas. Examples of content could include the difference in tolerances when preparing sites, levelling and consolidation of the soil. Please note: AO2 links to Topic 2.4 where learners could use the context of lawns for the broadcast sowing of grass seed.		

Element 3	Mowing grassed areas	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Criteria for first cut on a newly turfed or sown lawn. Appropriate equipment and mowing regimes for: • fine turf • utility lawns • shaded areas • meadows. The biodiversity, sustainability and plant health impacts of different mowing regimes, to include: • weekly mowing regimes • monthly mowing regimes • annual mowing regimes • collection of arisings • mulching mowers. Implication of the one third rule for grass removal on turf quality and health.	Mow a grassed area using a rotary lawn mower, to include: • prestart checks • health and safety considerations • personal protective equipment • set height of cut • produce a specified finish.	Sustainability implications of different mowing equipment, to include: • user-propelled • self-propelled • battery • petrol. The influence of mowing regimes on biodiversity.
Commentary		
AO1 allows learners to investigate mowing equipment and regimes to balance the needs of aesthetics, turf health and biodiversity in the mowing of grassed areas, while AO2 allows learners to demonstrate skill and competence in the use of a metal-bladed electric or petrol pedestrian-controlled lawn mower, to accurately and safely cut an area of turf. AO3 considers the carbon footprint of lawn equipment, along with the influence of mowing regimes on biodiversity.		

Element 4	Scarifying / aerating	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The purpose of scarification and aeration. Situations where scarification and aeration are required. The identification and impact of thatch depth and soil compaction in lawn areas.	Scarify a lawn to remove thatch. Aerate an area of lawn by either hollow tine or spiking.	Wider site implications of aeration and scarifying e.g. plant health benefits. Actions to make aeration and scarifying activities more sustainable e.g. composting of arisings.
Commentary		
AO1 identifies the impact of thatch and compaction on the health of the sward. AO2 allows learners to develop the skills involved in scarifying and aerating lawns, using either hand or powered equipment, while at AO3 the broader plant health implications are considered along with the sustainable disposal of arisings.		

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Element 5	Weed control	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
The benefits of biodiverse grassed areas. The impacts of chemical control on biodiversity. The advantages and limitations of chemical and non-chemical methods of weed control on lawns. Types of lawn weeds, to include: • moss / algae • broad leaf weeds • weed grasses.	Use a quadrat and identify the forbs present in a biodiverse lawn. Control lawn weeds, using non-chemical control methodologies.	Forbs and their beneficial impact on biodiversity.
Commentary		
AO1 allows learners to investigate the options available to horticulturists in the control of weeds on grassed surfaces, along with considering the impacts of such weed control measures on the environment. AO2 allows learners to develop skills in non-chemical weed control. AO2 also allows learners to develop skills in using a quadrat and in the identification of forbs in biodiverse lawn settings. AO3 offers learners the opportunity to investigate the beneficial impacts of forbs on biodiversity.		

Element 6	Maintaining turf health	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Characteristics of turf pests, and diseases along with their associated damage to turf, to include: • mammals • invertebrates • fungi. Cultural control measures to prevent or limit the spread of turf pests and diseases. Concept that the use of lawn fertilisers is a last resort option in turf management. Types of lawn fertiliser including spring and autumn formulations. The impact of fertilisers on the environment including soil life and other site features.	Identify and report turf pests diseases and deficiency symptoms. Determine factors that trigger interventions. Carry out cultural practices to control the spread of turf pests and pathogens. Advantages and limitations of lawn feeds Calculate quantities of lawn fertiliser for application to an area. Impacts of incorrect application of lawn fertiliser	The role of garden health plans in ensuring lawn health through the use of Integrated Pest Management. The adoption of organic lawn management systems. The sustainability of different lawn feeds, their impacts on soil organisms and biodiversity including organic and traditional approaches.
Commentary		
AO1 introduces learners to the concepts of sustainable turf health. Determining the thresholds for turf interventions is a key area of sustainable best practice and AO2 allows learners to develop a knowledge in this increasingly important area. In AO3 the use of garden health plans to ensure all aspects of turf health is considered along with the wider concepts of organic lawn maintenance and the sustainability of turf interventions. Please note: garden health plans consider the entire range of potential impacts on plant health, while considering the mitigations that can be carried out to manage these threats. Integrated Pest Management is a component part of a garden health plans, along with the management of other abiotic factors. Turf pests and diseases will be included in the RHS specimen list.		

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Element 7	Repairing turf	
AO1: **Knowledge**	AO2: **Application**	AO3: **Integration**
Techniques for repairing turf damage e.g. bare patches, ruts, pest and disease. Top dressing turf to correct minor fluctuations in levels.	Repair lawn turf e.g. edges, patches, levels.	The causes of turf damage and site factors that influence them e.g. shading by trees, location of paths.
Commentary		
AO1 allows learners to identify the appropriate actions to remedy a range of issues affecting grassed areas, while AO2 offers learners the opportunity to apply these principles when repairing grassed areas. AO3 considers the factors that many have caused the damage to the lawn, linking to other topic areas.		