

Unit 10: Establish and Manage Interior Plant Displays

Unit code:	F/600/9973
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to provide learners with an understanding of how to establish and manage interior plant displays and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

● Unit introduction

The use of plant displays and the demand for them within public areas has increased, They may be found within many different situations including offices, reception areas, indoor shopping centres, restaurants, pubs and leisure centres, in fact any area frequented and visited by the public. The use of plants within the interior environment is seen as a way of making it more welcoming and friendly by introducing natural elements, adding colour and fragrance and giving people a sense of wellbeing. Planted areas can either be one planter, a series of planters or specially created beds. Many new build projects incorporate areas such as atriums where plants can be grown in order to enhance the environment and building.

In addition, there is a demand for temporary plant displays for special events such as weddings, celebratory events and public openings.

The number of businesses which focus on the establishment and management of interior plant displays has grown, as have the career opportunities of those employed within the sector.

This unit will equip learners with the knowledge and practical skills needed to establish and maintain small and large interior plant displays effectively.

● Learning outcomes

On completion of this unit a learner should:

- 1 Be able to establish and manage plants in a permanent indoor setting
- 2 Understand the establishment of permanent interior plant displays
- 3 Understand the management of permanent interior plant displays
- 4 Be able to establish and manage temporary interior plant displays
- 5 Understand the management of interior plant displays.

● Unit content

1 Be able to establish and manage plant displays in a permanent indoor setting

Environments: light levels; temperature; humidity; air movement

Plant types: tropical; temperate; xerophytic; epiphytic; those requiring high and low light

Planting areas: freestanding containers, tiered ie fountain planters; wall mounted; beds; raised borders; hanging baskets

Media: peat based; soil based; peat free and peat alternative composts; expanded clay granules and other soil free systems; soil improvers and additives including water retention granules

Planning: calculation of media and plant requirements; choice of planters/containers; devising planting schemes and drawing up plans; specifications; Bills of Quantities

Design considerations: form; function; habit; texture; colour; scent; size; maintenance requirements

Establishment: cultivation; planting and spacing; initial irrigation and nutrient requirements; initial pruning; risk assessment; health and safety legislation

2 Understand the establishment of permanent interior plant displays

Environments: tropical; temperate; arid; alpine

Planting areas: freestanding containers, tiered ie fountain planters; wall mounted; beds; raised borders; hanging baskets

Maintenance: irrigation; misting; feeding; pest and disease control; support; training and tying; pruning; plant replacement; dead-heading; mulching; risk assessments; health and safety legislation; maintenance plans; minimising waste; correct disposal of debris

Environmental control: monitoring the interior environment; environmental control systems; supplementary and replacement lighting; irrigation and misting systems; feeding systems; control of air movement; heating

3 Understand the management of permanent interior plant displays

Monitoring health: pests; diseases; disorders; nutrient deficiencies; physical damage; over- and under-watering; contamination of growing medium

Management of plant health: cultural; chemical; biological; integrated management programmes; waivers against inappropriate actions (eg over-watering by clients); design solutions (eg to avoid physical damage); plant replacement

Feeding: methods; organic; inorganic; nutrients and minor nutrients; slow release; controlled release; liquid fertilisers

Set up factors: environmental (light levels, temperature, humidity, air movement, fluctuating environments); practical matter in a public space (security, safety, access, vulnerable visitors)

5 Be able to establish and manage temporary interior plant displays

Planning: establishing customer requirements; transporting plants and materials; containers suitable for temporary displays; dealing with adverse environments; reinstating the site to the client's satisfaction

Design considerations: purpose of display; plants suitable for temporary displays; temporary screening or blocking; positioning features and grouping of plants in a way which is appropriate to them, the environment and the intended visual impact

Establishment and maintenance: types of containers; media; planting and spacing; feeding; irrigation; misting; plant replacement; trimming, training and dead-heading; providing temporary support; risk assessment; health and safety legislation; short-term maintenance schedules; minimising waste; correct disposal of debris

6 Understand the management of interior plant displays

Monitoring health: pests; diseases; disorders; nutrient deficiencies; physical damage; over- and under-watering; contamination of growing medium

Management of plant health: cultural; chemical; biological; integrated management programmes; waivers against inappropriate actions (eg over-watering by clients); design solutions (eg to avoid physical damage); plant replacement

Feeding: methods; organic; inorganic; nutrients and minor nutrients; slow release; controlled release; liquid fertilisers

Set up factors: environmental (light levels, temperature, humidity, air movement, fluctuating environments); practical matter in a public space (security, safety, access, vulnerable visitors)

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 evaluate the site suitability and requirements and select suitable plant [IE, CT, RL]		
P2 prepare interior planting sites [IE, CT, RL, TW, SM, EP]		
P3 establish and manage ornamental plants in interior sites with different environmental conditions [IE, CT, RL, TW, SM, EP]	M1 prepare a maintenance plan for a permanent interior display covering a full year	D1 prepare a scheme of work and bill of quantities for a specified interior display
P4 evaluate suitable growing media and mulches for tropical, temperate, alpine and arid interior environments [IE, CT, RL, SM]		
P5 explain the influence of environmental factors, and their interactions, on successful establishment and development [IE, CT, RL]	M2 suggest design solutions, including plant selection, to overcome adverse environmental conditions	D2 explain how environmental impacts can be minimised when undertaking the management of permanent interior plant displays
P6 evaluate equipment available for measuring and controlling the interior environment [IE, CT, RL]		
P7 explain the care and pruning required for plants in interior environments [IE, CT, RL]		
P8 evaluate the requirements for feeding and watering interior displays and methods of application [IE, CT, RL]		

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P9 evaluate particular problems associated with interior plant displays with public access [IE, CT, RL]	M3 explain how interior displays may be designed and constructed to accommodate high levels of public access	
P10 evaluate the location for a temporary display and select plants that are compatible with each other and the immediate micro-climate [IE, CT, RL, SM]	M4 justify choice of plants, media and containers	
P11 plant and maintain interior plants in containers and temporary interior displays		
P12 assess indoor plants for signs of ill health and diagnose problems		
P13 specify the maintenance requirements of temporary interior displays [IE, CT, RL, TW, SM, EP]		D3 discuss management of health and safety for temporary interior plant displays.
P14 describe commonly occurring pests, diseases and disorders of interior plants [IE, CT, RL]		
P15 evaluate the use of cultural, chemical and biological controls and integrated management programmes for interior plant displays. [IE, CT, RL, SM]	M5 explain management of common pests and diseases.	

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit could include lectures, seminars, practical tasks, visits to interior displays and plant suppliers and independent learner research. Delivery should stimulate, motivate, educate and enthuse learners and utilise the framework of personal, learning and thinking skills.

It is essential that tutors stress the importance of safe working practices, legal obligations and effective management in ensuring that establishment and maintenance operations have a minimal impact on the environment. Tutors should ensure that risk assessments are undertaken before any practical activity.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units and assessment instruments learners are taking as part of their programme of study.

Delivery of learning outcomes 1, 2 and 3 may be integrated so learners develop the knowledge and practical skills needed to establish and maintain permanent interior displays. Although the knowledge elements may be delivered through formal lectures, presentations and independent research, practical exercises may also be useful. For example, learners could measure and record the environments in which interior displays are growing and comment on the success (or otherwise) of their design and of the plants being used.

Learners should be able to undertake the practical tasks of building, planting and maintaining interior displays in a realistic working environment. This may be within the centre (especially in areas used by other learners) or, if possible, in real-life working environments. It will be useful for centres to forge links with interior landscaping companies and with those responsible for the management of areas containing interior displays (for example the management company responsible for a shopping mall).

Learning outcome 4 may be integrated with learning outcome 5. Delivery may be through formal lectures (supported by a library of examples) and independent learner research. However, every opportunity should be taken to introduce learners to plant health management 'in the field'. In this way, learners will become familiar with the most commonly occurring pressures on plant health and be more able to appreciate the constraints and opportunities offered by the various control strategies.

Learning outcome 5 focuses specifically on temporary displays. Learners should be able to install temporary displays appropriate to their setting and fulfil client requirements (or fulfil the brief given by the tutor). Links with contractors and venues where temporary displays are commonly used will prove useful in broadening learners' experience.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction to and overview of the unit.
Assignment 1: Planning and Establishment of Permanent Indoor Displays (P1, P2, P3, M1, D1)
Tutor introduces the assignment brief.
Theory sessions: planning and designing container displays including health and safety and environmental issues.
Practical sessions: container design.
Practical sessions: container establishment.
Learner research and recording information from site assessments.
Visiting speakers.
Visits.
Assignment 2: Management and Maintenance of Permanent Indoor displays (P4, P5, P6, P7, P8, P9, M2, M3, D2)
Tutor introduces the assignment brief.
Theory session: container management and maintenance.
Practical sessions: management and maintenance of containers.
Visiting speakers.
Visits to shows and gardens.
Assignment 3: Establishment and Maintenance of Temporary Containers (P10, P11, P13, M4, D3)
Tutor introduces the assignment brief.
Theory session: temporary container establishment and maintenance.
Practical sessions: container establishment.
Practical sessions: container maintenance.
Learner research.
Visits to specialist nurseries.
Assignment 4: Plant Health Management (P12, P14, P15, M5)
Tutor introduces the assignment brief.
Theory session: pest and disease management.
Practical session: pest and disease identification.
Practical session: pest and disease control.
Theory session: fertilisers and feeding.
Fertiliser and feeding practicals.
Learner research.
Visiting speakers.
Unit review.

Assessment

For P1, learners will need to evaluate different areas for the establishment of interior permanent plantings. Learners will need to produce a site analysis based on environmental conditions and the purpose of displays and recommend suitable plant material. This could take the form of detailed notes or a report. Where possible, to ensure assessment is fair the size and complexity of the tasks should be the same for all learners. In addition, to ensure that learners have a clear knowledge of the plant material selected for each planter they need to produce a plant identification sheet including a picture of each plant and information about its cultural requirements. Learners are also required to produce a detailed scaled plan for each planter.

For P2 and P3, learners should use the plans they have produced in P1 to prepare and plant appropriate plants on sites with different environmental conditions. Learners should then manage these plantings in line with client requirements. Evidence for this could take the form of observation and questioning sheets produced by the tutor. Learners should produce a risk assessment for all of the activities they undertake. This can also be produced as evidence, with the site analysis report and scale plan.

For P4, learners are required to investigate the different growing media and mulches used in interior plantings and evaluate their use for different types of plants. Evidence may take the form of a written report or a verbal/electronic presentation

For P5, P6, P7, P8 and P9, learners are required to provide information on various elements and tasks relating to the successful management of permanent interior planters. Evidence for these may be in the form of a pictorial presentation or assessed during practical activities as answers to structured verbal questions recorded by the tutor.

For P10 and P11, learners are required to undertake the establishment and management of temporary displays in different environments. For fairness of assessment the size and complexity of the task should be the same for each learner. Site evaluation, plant selection, establishment and maintenance could be assessed during practical activities by the tutor using observation sheets and structured verbal questions.

For P13, learners could produce written specifications for the temporary displays established at P11.

For P12, P14 and P15, learners are required to have a thorough knowledge of plant health management. Evidence could be in the form of a pictorial leaflet covering plant health recognition and management.

For M1, learners are required to produce a maintenance plan for a permanent interior display. This could be linked to the display established in P2.

For M2, learners are required to suggest solutions, including design and plant selection, to overcome adverse environmental conditions (for example fluctuating temperatures, low humidity, low light). Evidence may be in the form of a report or verbal or electronic presentation.

For M3, learners should explain how interior displays may be designed and constructed to withstand high levels of access by the public. Learners should focus both on the security of the display and on the safety of the public (especially children and other vulnerable groups). Evidence may be in the form of a report or verbal or electronic presentation

For M4, learners need to justify their choice of plants, media and containers from P11. Evidence could link to that produced for M3.

For M5, learners could produce a pest and disease management plan for an interior display specified by the tutor or agreed through negotiation with the learner. The plan should include details of the monitoring activities.

For D1, learners will need to produce a scheme of work and Bill of Quantities for the display established at P2.

For D2, learners will need to demonstrate that they have a thorough understanding of how adverse environmental impacts can be minimised. This should be linked to P5, P6, P7, P8 and P9 and could be assessed in the same way.

For D3, learners are required to demonstrate that they have a thorough understanding of health and safety issues surrounding the installation and use of temporary interior displays. This could be presented as a risk assessment report.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, M1, D1	Planning and Establishment of Permanent Indoor Displays	You are an interior landscaper and you are required by a client to plan and design permanent interior displays on sites with different environmental conditions. You will set up and install the displays as per your own specification.	Practical. Written.
P4, P5, P6, P7, P8, P9, M2, M3, D2	Management and Maintenance of Permanent Indoor Displays.	You have installed some interior displays for a client and you now required to devise a management plan and carry out the management and maintenance of them. You will present evaluations and recommendations regarding the techniques you have used.	Practical. Presentation.
P10, P11, P13, M4, D3	Establishment and Maintenance of Temporary Containers	You have been commissioned to establish, manage and maintain a quantity of containers and planters for various events, including the installation of them.	Written. Practical.
P12, P14, P15, M5	Plant Health Management	You have been set the task of producing a leaflet which can be used for the effective monitoring and management of plant health for both permanent and temporary displays.	Leaflet.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Land-based sector suite. This unit has particular links with:

Level 2	Level 3
Undertake Nursery Stock Production	Undertake Identification, Selection and Use of Ornamental
	Understand the Principles of Advanced Horticultural Science
	Manage Plant Propagation Activities
	Undertake Horticultural Production Techniques - Outdoors
	Undertake Horticultural Production Techniques – Protected
	Manage Advanced Nursery Stock Production
	Understand the Principles of Organic Crop Production

Essential resources

Learners will need access to the appropriate sites and facilities for the establishment and maintenance of the full range of plant material required by this unit. This will include access to appropriate tools, containers and materials, plants and the use of indoor areas, preferably with a range of environmental conditions. Learners will need to access to learning resources for research purposes including the internet, books and magazines. First aid and hand washing facilities should be available.

Employer engagement and vocational contexts

In order to deliver this unit it is essential that centres have close links with organisations and businesses involved with the establishment and maintenance of interior plant displays. This may include visits to RHS shows, atriums, botanical garden displays and large indoor shopping centre displays. Centres should establish links with interior landscaping contractors and other organisations associated with the upkeep and maintenance of both permanent and temporary plant displays in order that visits can be arranged and guest speakers utilised.

In addition, a network of work experience providers should be in place to allow learners to gain practical experience and cover any areas not available at the delivery centre.

Indicative reading for learners

Textbooks

Beckett K. A – *RHS Encyclopaedia of House Plants* (Colour Library Books, 1995) ISBN 978-1858334868

Brickell C – *Royal Horticultural Society Gardeners' Encyclopaedia of Plants and Flowers* (Dorling Kindersley Publishers, 2006) ISBN 1405314540

Buczacki S and Harris K – *Pests Diseases and Disorders* (Harper Collins Publishers, 2000) ISBN 0002200635

Ekin M – *Wooden Garden Structures: A Complete Guide* (The Crowood Press Ltd, 2006) ISBN 978-1861268372

Stevens D, Huntingdon L and Key R – *The Complete Book of Garden Design Construction and Planning* (Ward Lock, 1994) ISBN 0-7063-7234-4

Waite R – *RHS Container Gardening* (Reed International Books Ltd, 1992) ISBN 1857329007

Journals

The Garden - RHS

Horticulture Week

Websites

www.defra.gov.uk	Department for Environment, Food and Rural Affairs
www.environment-agency.gov.uk	Environment Agency
www.hdc.org.uk	Horticulture Development Committee
www.hsa.gov.uk	Health and Safety Executive
www.hta.gov.uk	Horticultural Trades Association
www.lantra.co.uk	Lantra Sector Skills Council
www.nationaltrust.org.uk	National Trust
www.pestmanagement.co.uk	Integrated Pest Management Resource Centre
www.rhs.org.uk	Royal Horticulture Society
www.saps.plantsci.cam.ac.uk	Science and Plants for Schools

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	assessing and evaluating indoor areas for setting up planters and containers completing risk assessments
Creative thinkers	producing scale plans producing a plant health leaflet organising and presenting pictorial presentations creating interior design areas
Reflective learners	presenting information to other learners through presentations creating displays and receiving feedback from other learners, and tutor
Team workers	working with others when planning and creating planting schemes
Self-managers	programming maintenance programmes, writing specifications and Bills of Quantity undertaking practical activities
Effective participators	discussing and debating and reaching conclusions during practical activities.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	researching information using internet
Creative thinkers	undertaking practical activities and trying out new techniques and ideas
Reflective learners	evaluating their performance during practicals
Team workers	working with other learners whilst undertaking practical activities
Self-managers	organising time, resources and prioritising actions in relation to assignments
Effective participators	discussing and debating with tutor and other learners, during timetabled sessions.

● Functional Skills — Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	using portable ICT technology to gather and record information using the internet to research and gathering information using computers to record and evaluate information
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	using IT systems for PowerPoint presentations
Evaluate the selection and use of ICT tools and facilities used to present information	
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	calculating the size of areas and number of plants for planting
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	discussing displays with other learners undertaking presentations and receiving feedback.
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	