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Pearson

Higher Nationals in

Horticulture

SCHEME OF WORK

UNIT: 1 Principles of Botany

For use with the Higher National Certificate and

Higher National Diploma in Horticulture

First teaching from September 2018

Issue 1



Edexcel, BTEC and LCCI qualifications

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They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

Higher National Certificate/Diploma in Horticulture

SCHEME OF WORK

Programme Title:	Higher Nationals in Horticulture	Level:	4
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Unit Title:	Principles of Botany	Tutor:	
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Unit Number:	1	Academic Year:	
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Learning Outcomes (LO)	Assessment 1	Assessment 2	Assessment 3	Assessment 4
LO1 Assess the role of plants as energy sources for all living organisms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO2 Demonstrate the fundamentals of plant anatomy, physiology and morphology	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO3 Analyse the evolutionary and ecological relationships between plants	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LO4 Describe the relationships between plants and humans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



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Sessions	Learning Outcome(s)	Session Activities
Session 1	LO1	Topic(s): <ul style="list-style-type: none">• Introduction to Botany, Principles of Botany, and a review of the role of plants as energy sources for all living organisms Sample activities: <ul style="list-style-type: none">• Tutor activity: Introduction to unit and assessment expectations• Group activity: Class discussion on the significance of plants as energy resources using examples
Session 2	LO1	Topic(s): <ul style="list-style-type: none">• Photosynthesis Sample activities: <ul style="list-style-type: none">• Tutor activity: Presentation or video demonstration and explanation of photosynthesis• Individual or group activity: Lab-based activities on the manipulation of light levels and sugar production in leaves.
Session 3	LO1	Topic(s): <ul style="list-style-type: none">• Respiration Sample activities: <ul style="list-style-type: none">• Tutor activity: Introduction on respiration equation, differences between animal and plant respiration,• Group or pair activity: Illustration of lab-based practicals and interpretation of results.
Session 4	LO1	Topic(s): <ul style="list-style-type: none">• Transportation in plants: Transpiration and osmosis Sample activities: <ul style="list-style-type: none">• Individual or group activity: Lab-based practicals.• Tutor activity: Discussion on the topic.
Session 5	LO1	Topic(s): <ul style="list-style-type: none">• Nutrient uptake in plants Sample activities: <ul style="list-style-type: none">• Tutor activity: Role of plant cell walls, nutrient uptake and cation exchange.• Pair activity: Students to produce posters illustrating nutrient uptake.



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Sessions	Learning Outcome(s)	Session Activities
Session 6	LO2	Topic(s): <ul style="list-style-type: none">Plant structure and function: Anatomy and morphology Sample activities: <ul style="list-style-type: none">Tutor activity: Presentation on the growth and function of plant cells, primary and secondary growthIndividual activity: Students to undertake research collecting examples of plant structure and function.
Session 7	LO2	Topic(s): <ul style="list-style-type: none">Cell differentiation: Roots and shoots Sample activities: <ul style="list-style-type: none">Tutor activity: Structure and function of root and shoot tissue, cell differentiation.Pair activity: students to compare and contrast cell differentiation in roots and shoots
Session 8	LO2	Topic(s): <ul style="list-style-type: none">Cell differentiation: Stems and leaves Sample activities: <ul style="list-style-type: none">Tutor activity: Presentation introducing students on cell differentiation on stem and leavesIndividual or group activity: Lab-based practical on the dissection of principle components of stems and leaves, their structure and function, and the use of light microscopes.
Session 9	LO2	Topic(s): <ul style="list-style-type: none">Cell differentiation: Flowers and fruits Sample activities: <ul style="list-style-type: none">Tutor activity: Tutor activity: Presentation introducing students on cell differentiation in flowers and fruitsPair activity: Lab-based practicals on the dissection of flowers and fruits, the structure and function of principle structures, and differences in plant tissue.
Session 10	LO2	Topic(s): <ul style="list-style-type: none">Plant growth and development: Germination and seedling growth Sample activities: <ul style="list-style-type: none">Tutor activity: Development of germinating seedling in mono- and dicotyledonous plants, factors triggering germination.



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Sessions	Learning Outcome(s)	Session Activities
Session 11	LO3	Topic(s): <ul style="list-style-type: none">Evolutionary and ecological relationships between plants Sample activities: <ul style="list-style-type: none">Tutor activity: Prokaryotic and eukaryotic cells, structure and differences in organelles.Group activity: Discussion of the evolutionary theory relating to plant development.
Session 12	LO3	Topic(s): <ul style="list-style-type: none">Plant classification: Bryophytes and ferns Sample activities: <ul style="list-style-type: none">Tutor activity: Tutor activity: Presentation introducing students to the topicIndividual or group activity: Lab-based practical on the identification of principle structures of mosses and common ferns, and the life cycles of bryophytes and ferns.
Session 13	LO3	Topic(s): <ul style="list-style-type: none">Plant classification: Conifers and flowering plants Sample activities: <ul style="list-style-type: none">Tutor activity: Tutor activity: Presentation introducing students to the topicIndividual or group activity: Lab-based practical on the identification of principle structures of conifers and flowering plants, and their life cycles.
Session 14	LO3	Topic(s): <ul style="list-style-type: none">Ecological relationships between plants Sample activities: <ul style="list-style-type: none">Tutor activity: Class presentation on Mutualism, parasitism, pollinationPair work: Students to work in pairs to create posters illustrating the ecological relationship between plants.
Session 15	LO3	Topic(s): <ul style="list-style-type: none">Global distribution of plants Sample activities: <ul style="list-style-type: none">Tutor activity: Introduction to the concept of biomes, distribution of global biomes, plant adaptations to biome environments.



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Sessions	Learning Outcome(s)	Session Activities
Session 16	LO4	Topic(s): <ul style="list-style-type: none">• Uses of plants and human/plant relationships Sample activities: <ul style="list-style-type: none">• Tutor activity: Tutor to deliver presentation on topic• Individual or group activity: Supermarket shop and identification of all plant-based products.
Session 17	LO4	Topic(s): <ul style="list-style-type: none">• Plants as food Sample activities: <ul style="list-style-type: none">• Tutor activity: Global food markets, value and worth of global markets, principle products and• Group activity: Tutor-led whole group discussion around genetic variation.
Session 18	LO4	Topic(s): <ul style="list-style-type: none">• Plants in medicine and construction Sample activities: <ul style="list-style-type: none">• Tutor activity: Economic value of plants, contribution to global markets development of new plant products.
Session 19	LO4	Topic(s): <ul style="list-style-type: none">• Role of plants in ecosystem services Sample activities: <ul style="list-style-type: none">• Tutor activity: Tutor presentations on regulation of water cycles, water purification and sustainable flood control in urban and agricultural landscapes.
Session 20	LO4	Topic(s): <ul style="list-style-type: none">• Role of plants in ecosystem services Sample activities: <ul style="list-style-type: none">• Tutor activity: Tutor presentations on gaseous exchange and regulation of oxygen and carbon dioxide, plants as carbon stores, aesthetic and cultural uses of plants.



Pearson Higher Nationals in Horticulture

SCHEME OF WORK

UNIT: 2 Business and the Business Environment

For use with the Higher National Certificate and

Higher National Diploma in Horticulture

First teaching from September 2018

Issue 1



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Higher National Certificate/Diploma in Horticulture

SCHEME OF WORK

Programme Title:	Higher Nationals in Horticulture	Level:	4
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Unit Title:	Business and the Business Environment	Tutor:	
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Unit Number:	2	Academic Year:	
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Learning Outcomes (LO)	Assessment 1	Assessment 2	Assessment 3	Assessment 4
LO1 Explain the different types, size and scope of Land-based organisations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO2 Demonstrate the interrelationship of the various functions within a Land-based organisation and how they link to organisational structure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO3 Use contemporary examples to demonstrate both the positive and negative influence/impact the macro environment has on Land-based business operations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO4 Determine the internal strengths and weaknesses of specific Land-based businesses and explain their interrelationship with external macro factors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Sessions	Learning Outcome(s)	Session Activities
Session 1	LO1	<p>Topic(s): Different types of business organisations</p> <ul style="list-style-type: none"> • Introduction to the unit's content and two unit assignments • What is a business? • Types of organisation, profit and non-profit entities • Formal and informal businesses • Legal structures – sole trader, partnerships, limited companies • Other forms of business entity <p>Sample activities:</p> <ul style="list-style-type: none"> • Group activity: Question and answer activity on general/prior knowledge of different business types. • Group activity: Discuss and differentiate legal entities e.g. sole trader, partnership etc. • Pair activity: Activity in pairs to establish advantages and disadvantages of each business type.
Session 2	LO1	<p>Topic(s): Size, scale and scope of different organisations</p> <ul style="list-style-type: none"> • Issue and introduce Assignment 1 • Explore differences in businesses on the basis of their main function, scope and the size of operations. • National, international and global business development and growth. <p>Sample activities:</p> <ul style="list-style-type: none"> • Individual activity: Measure business size. Large and small organisations – business scale. • Individual activity: Use of case studies to highlight differences in large, small and micro businesses. • Group activity: Group discussion – organic growth of a business through different structures e.g. sole trader, partnership, limited company.

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Sessions	Learning Outcome(s)	Session Activities
Session 3	LO1	Topic(s): Stakeholders, roles and responsibilities <ul style="list-style-type: none">Investigate different roles within typical businesses and the responsibilities associated with different levels and authorities.Stakeholder analysis and meeting stakeholder needs.Business obligations to stakeholders in the context of corporate social responsibility (CSR). Sample activities: <ul style="list-style-type: none">Group activity: Work in a small group to research and identify different roles within different businesses.Group activity: Each group create a quiz activity on responsibilities attached to different roles in a business and test one another.Group activity: Discuss levels of authority and associated responsibilities.
Session 4	LO1	Topic(s): Business environment <ul style="list-style-type: none">The purpose of economic activity and the production of goods and services to satisfy changing needs and wants.Introduction to economic concepts e.g. scarcity and choice, supply and demandIndustrial structures definition and introduction to Porter's Five forces to analyse industry structure. Sample activities: <ul style="list-style-type: none">Brainstorm activity: Discuss different economic concepts and different examples.Group activity: Research how businesses respond to variations in supply and demand.Group activity: Case study discussion – the application of Porter's Five Forces to identify and understand industry competition.



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Sessions	Learning Outcome(s)	Session Activities
Session 5	LO2	<p>Topic(s): Functional areas in business (part 1)</p> <ul style="list-style-type: none"> Explore different main functions or departments such as marketing, finance, human resources. <p>Sample activities:</p> <ul style="list-style-type: none"> Group activity: Identify different departments/functions in a given business. Tutor to provide different contexts to explore differences. Group activity: Different groups present back the main generic functions such as marketing, finance and human resources, including their roles and responsibilities. Group activity: Review different organisational charts. Small group feedback on how a particular chart illustrates functional interrelationships.
Session 6	LO2	<p>Topic(s): Functional areas in businesses (part 2)</p> <ul style="list-style-type: none"> Explore secondary/additional functions or departments found in some businesses such as procurement, maintenance, operations and manufacturing. <p>Sample activities:</p> <ul style="list-style-type: none"> Group activity: Identify and list additional support departments/functions in different types of businesses from different sectors. Tutor to provide different contexts to explore differences. Group activity: Different groups present back on each of the additional functions such as procurement, maintenance, operations and manufacturing, including their roles and responsibilities.
Session 7	LO2	<p>Topic(s): Functional interrelationships</p> <ul style="list-style-type: none"> Explore interrelationships between various functions and the impact on operational effectiveness. Explore the role of different functions in achieving organisational goals and objectives. <p>Sample activities:</p> <ul style="list-style-type: none"> Group activity: Establish the links and dependencies between different departments/functions in a given business. Tutor to provide different contexts to explore differences. Group activity: Discussion and student input into the relation between various functions previously identified. Pair activity: Work in pairs to explore the role of different functions in achieving organisational objectives.

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Sessions	Learning Outcome(s)	Session Activities
Session 8	LO2	Topic(s): Functions and structures (part 1) <ul style="list-style-type: none">Define organisational charts and their use.Different structures e.g. flat or tall hierarchical, matrix etc.Investigate how different functions impact on organisational structures.The impact of size and scope on organisational structures Sample activities: <ul style="list-style-type: none">Group activity: Question and answer activity – what are organisational charts and what is their purpose? Identify the different types e.g. tall or flat.Group activity: Discussion and student input on how different functions report into each other.Group activity: Create an organisational chart for a given business.Individual or group activity: Reflect on how size and scope of previous activity affected the structure created by students.
Session 9	LO2	Topic(s): Functions and structures (part 2) <ul style="list-style-type: none">Explore differences between structures on the basis of size (national, global etc.) and location.Complexities of local, transnational, international and global organisationsVirtual structures Sample activities: <ul style="list-style-type: none">Group activity: Discuss varied structures such as chain, franchise, head office operated and others.Individual activity: Student research into centralised and de-centralised structures and management.Group activity: Student debate on the use of virtual structures, appropriateness and future practices.
Session 10	LO1 & LO2	Topic(s): Assignment draft review workshop <ul style="list-style-type: none">Review of student progress on the first assignment.Review of academic requirements and submission format. Sample activities: <ul style="list-style-type: none">Tutor activity: Brief tutor-led overview of assignment requirements.Group activity: Open question and answer activity to address general questions and concerns.



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Sessions	Learning Outcome(s)	Session Activities
Session 11	LO3	<p>Topic(s): Environmental analysis</p> <ul style="list-style-type: none"> • Issue Assignment 2/Introduction to the second assessment • Define the concept of environmental analysis in a business context. • Macro and micro environmental analysis • Introduction to PESTLE and SWOT/TOWS analytical tools <p>Sample activities:</p> <ul style="list-style-type: none"> • Pair activity: Investigate and define business environmental analysis. • Group activity: Differentiate between a macro and micro environmental analysis. • Tutor activity: Tutor-led definition and explanation of a PESTLE and a SWOT/TOWS analysis.
Session 12	LO3	<p>Topic(s): Macro environmental analysis – PESTLE (part 1)</p> <ul style="list-style-type: none"> • In-depth delivery of a PESTLE analytical tool • Investigation of current case studies with which to apply the model <p>Sample activities:</p> <ul style="list-style-type: none"> • Tutor activity: Tutor-led explanations and questioning – political, economic and social factors • Group activity: Research activity to investigate current political, economic and social factors influencing and impacting the business environment. Students present feedback and discuss. • Group activity: Apply the researched factors to a given organisation. • Pair activity: Find a business to apply PESTLE and SWOT/TOWS analysis.
Session 13	LO3	<p>Topic(s): Macro environmental analysis – PESTLE (part 2)</p> <ul style="list-style-type: none"> • In-depth delivery of a PESTLE analytical tool • Investigation of current case studies with which to apply the model <p>Sample activities:</p> <ul style="list-style-type: none"> • Group activity: Tutor-led explanations and questioning – technological, legal and environmental factors. • Group activity: Research activity to investigate current technological, legal and environmental factors influencing and impacting the business environment. Students present feedback and discuss. • Group activity: Apply a PESTLE analysis to a given organisation. • Pair activity: Create a PESTLE analysis for presentation in the next session.

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Sessions	Learning Outcome(s)	Session Activities
Session 14	LO3	Topic(s): Macro environmental analysis applied – PESTLE <ul style="list-style-type: none">Investigation of PESTLE analysis applied in and presented by students for their selected contexts. Sample activities: <ul style="list-style-type: none">Individual or group activity: Student presentations of a PESTLE analysis for a chosen business.Individual or group activity: Peer review and feedback on presentations.Tutor activity: Tutor to summarise findings and link to Assignment 2.
Session 15	LO3	Topic(s): Macro environmental impact and response <ul style="list-style-type: none">Investigation of how the macro environment affects business operations.Transformation processes that organisations go through in response to change. Sample activities: <ul style="list-style-type: none">Group activity: Impact analysis of environmental factors on a selected business.Group activity: Brainstorming session on ways a business could respond to change.Tutor activity: Tutor-led critical reflection of practicalities of discussed changes.
Session 16	LO4	Topic(s): Micro environmental analysis – SWOT/TOWS <ul style="list-style-type: none">In-depth delivery of a SWOT/TOWS analytical tool as an analysis frameworkThe link between external factors and internal SWOTInvestigation of current case studies with which to apply the model Sample activities: <ul style="list-style-type: none">Tutor activity: Tutor-led explanations and questioning – SWOT factors. The value of SWOT analysis and implementation.Group activity: Question and answer activity – S&W influenced by PESTLE, which O&Ts arises from PESTLE.Group activity: Apply a SWOT/TOWS analysis to a given organisation.Group activity: Group presentation of SWOT analysis with Q&A.



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Sessions	Learning Outcome(s)	Session Activities
Session 17	LO4	<p>Topic(s): Micro environmental analysis applied – SWOT/TOWS</p> <ul style="list-style-type: none"> Investigation of a SWOT/TOWS analysis applied and presented by student for their selected contexts <p>Sample activities:</p> <ul style="list-style-type: none"> Individual or group activity: Student presentations of a SWOT analysis for a chosen business. Individual or group activity: Peer review and feedback on presentations. Tutor activity: Tutor to summarise findings and link to Assignment 2.
Session 18	LO4	<p>Topic(s): Internal factors and responses affecting operations</p> <ul style="list-style-type: none"> Investigate how internal factors should be analysed and how strengths and weaknesses that affect business operations form the basis for strategic management. Decision-making and action-planning based on SWOT analysis findings <p>Sample activities:</p> <ul style="list-style-type: none"> Group activity: Investigate how information from a SWOT analysis should be viewed and used. Pair activity: Explore and list possible business strategies that could respond to SWOT and PESTLE factors. Tutor activity: Tutor-led critical reflection of practicalities of discussed strategies.
Session 19	LO3 & LO4	<p>Topic(s): Assignment workshop</p> <ul style="list-style-type: none"> Review of student progress on the second assignment. <p>Sample activities:</p> <ul style="list-style-type: none"> Tutor activity: Brief tutor-led overview of assessment requirements. Group activity: Open question and answer activity to address general questions and concerns. Group activity: Review of academic requirements and submission format. Individual activity: Individual student queries and questions.
Session 20	LO3 & LO4	<p>Topic(s): Assignment draft review workshop</p> <ul style="list-style-type: none"> Review of individual student drafts for second assignment <p>Sample activities:</p> <ul style="list-style-type: none"> Individual activity: Individual appointments to address individual student queries and questions.