YEAR 11 HORTICULTURE – STUDENT OBJECTIVES 2011

PROPOSED STANDARDS FOR 2011

CODE	TITLE	LEVEL	CREDIT
US 1	Prepare and sow outdoor seedbeds manually	One	5
US 9768	Explain and investigate the elementary properties of growing media	One	6
US 23780	Undertake general garden maintenance	One	5
US 23782	Identify containers, materials, plants and tools used in plant propagation	One	2
US 23783	Grow and maintain plants in containers from seed	One	5
CORE SUMMARY *– TOTAL CREDITS POSSIBLE IF ALL ASPECTS OF EACH STANDARD ARE FULFILLED = 24*			*(23)*

US 1	Prepare and sow outdoor seedbeds manually

Elements and performance criteria

Element 1

Cultivate soil using hand tools.

Range tools may include but are not limited to – spade, fork, rake, push hoe, Dutch hoe.

Performance criteria

1.1 The tools selected are suitable for the task and are used safely.

1.2 Plain (single spit) digging is used in accordance with the soil characteristics.

1.3 Cultivation depth and tilth are consistent over the cultivated area.

1.4 Soil is aerated suitably for the soil characteristics and seed to be used.

1.5 Surface is even over the cultivated area.

1.6 Tools are cleaned and stored after use, in accordance with workplace procedures.

1.7 Added material is incorporated uniformly throughout the total area.

Range material to be added may include but is not limited to – organic matter, fertilisers, manures, and such soil conditioners as lime.

Element 2

Recognise and apply fertilisers and lime.

Range recognise lime and three of the following fertilisers – sulphate of ammonia, sulphate of potash, superphosphate, a compound fertiliser, organic fertiliser, blood and bone, pelletised manure.

Performance criteria

2.1 Fertiliser, manure, and lime are identified by sight.

2.2 Fertiliser or lime is measured out accurately, in accordance with workplace procedures.

2.3 Fertiliser or lime is spread evenly over the specified area at the instructed rate of application.

2.4 Equipment and materials are stored after use, in accordance with workplace procedures.

Element 3

Prepare a seedbed by hand for sowing.

Performance criteria

3.1 The seedbed is cleared of weeds and surface trash, which are disposed of in accordance with workplace procedures.

3.2 Soil tilth is even and suited to intended seed and crop.

3.3 Soil aeration and moisture levels are appropriate for seed germination.

3.4 The seedbed is contoured in accordance with workplace procedures.

Element 4

Sow seed by hand in outdoor seedbeds using broadcast or drilling methods.

Performance criteria

4.1 Broadcast seed is sown at an even rate and incorporated to an even depth, in accordance with workplace procedures.

4.2 Drilled seed is sown at a correct depth in straight drills spaced at intervals, in accordance with workplace procedures.

4.3 Sowings are labelled accurately and clearly.

4.4 The site is left clean and tidy with all equipment and unused seed stored, in accordance with workplace procedures.

Element 5

Maintain seedbed to seedling stage of growth.

Range may include but is not limited to – weeding, watering, control of pests and diseases.

Performance criteria

5.1 Seedbed is regularly maintained to ensure optimum seedling growth.

5.2 Seed germination and seedling growth is checked regularly.

5.3 Records are kept of seedbed maintenance from seed germination to seedling stage of growth.

US 9768	Explain and investigate the elementary properties of growing media

Elements and Performance Criteria

element 1

Compare the physical and chemical properties of growing media.

performance criteria

1.1 The physical comparison is in terms of drainage or aeration.

Range: drainage and aeration may include but are not limited to - particle size, pore spaces, root movement, temperature.

1.2 The chemical comparison is in terms of nutrient availability or retention.

element 2

Identify the effect of biological characteristics of growing media on plant growth.

performance criteria

2.1 The identification of the effect of biological characteristics of growing media on plant growth is in terms of the physical and chemical properties.

2.2 The identification of the effect of biological characteristics of growing media on plant growth is in terms of soil organisms.

element 3

Explain a technique used to modify growing media to optimise plant growth.

performance criteria

3.1 The explanation of the technique is in terms of growing media modification.

3.2 The explanation of the modification is in terms of optimal plant growth.

US 23780	Undertake general garden maintenance

Elements and performance criteria

Element 1

Maintain gardens.

Range over a period of at least eight weeks.

Performance criteria

1.1 Garden weeds are controlled to remove competition in accordance with industry practices.

Range any two of – cultivation, mulching, hand weeding.

1.2 Watering equipment is selected and gardens are hand watered to maintain plant growth in accordance with industry practices.

1.3 Side dressings of fertilisers are applied at pre-determined application rates in accordance with industry practices.

1.4 Pruning tools are selected and plants are disbudded and/or dead-headed when flowering has finished in accordance with industry practices.

Range secateurs, shears.

1.5 Plants are supported, staked and tied if required in accordance with industry practices.

1.6 Rakes are selected and used to level and aerate the soil surface in accordance with industry practices.

1.7 Garden waste is collected, recycled and/or disposed of in accordance with industry practices.

Element 2

Maintain lawns.

Range over a period of four weeks;
lawn area must be at least 100m^2.

Performance criteria

2.1 Lawns are mown and edges are manually trimmed in accordance with industry practices.

Range must include – feet, eye, and ear protection;
equipment may include but is not limited to – mowers, edge shears, wheel edger (hand or manual).

2.2 Paths or concrete areas are swept clean of all debris in accordance with industry practices.

2.3 Leaves are cleared from lawns in accordance with industry practices.

2.4 Garden waste is collected, recycled and/or disposed of in accordance with industry practices.

2.5 Equipment is cleaned and stored safely in accordance with industry practices.

Element 3

Identify and care for horticultural hand tools.

Performance criteria

3.1 Horticultural hand tools are identified and a function is stated for each in accordance with industry practices.

Range at least six tools.

3.2 The care of horticultural hand tools is described in accordance with industry practices.

Range at least three tool care practices.

3.3 Tools are stored safely in their designated storage area in accordance with industry practices.

US 23782	Identify containers, materials, plants and tools used in plant propagation

Elements and performance criteria

Element 1

Identify containers used in plant propagation.

Performance criteria

1.1 Common containers used in plant propagation are identified.

Range at least six containers;
containers include but are not limited to – punnets, multi-cell punnets, trays, potting bags, rootrainers, cells, pots.

Element 2

Identify propagating media used in plant propagation.

Performance criteria

2.1 Common plant propagating media are identified.

Range at least six plant propagating media;
plant propagating media may include but are not limited to – seed raising mix, potting mix, cutting mix, sand, pumice, bark, vermiculite, peat.

Element 3

Identify fertilisers and lime used in plant propagation.

Performance criteria

3.1 Common fertilisers and lime used in plant propagation are identified.

Range at least six fertilisers and lime;
fertilisers and lime may include but are not limited to – general crop fertiliser, slow release fertiliser, superphosphate, blood and bone, sheep pellets, lime.

Element 4

Identify plants commonly used in plant propagation.

Performance criteria

4.1 Commonly propagated plants are identified.

Range at least 12 commonly propagated plants;
plants may include but are not limited to – vegetable, floricultural, or amenity plants.

Element 5

Identify tools used in plant propagation.

Performance criteria

5.1 Commonly used plant propagating tools are identified.

Range at least six plant propagating tools;
plant propagating tools may include but are not limited to – dibber sticks, floats, secateurs, sieves, watering cans, knives.

US 23783	**Grow and maintain plants in containers from seed**

Elements and performance criteria

Element 1

Identify parts of seeds and germinated seeds.

Performance criteria

1.1 External seed parts are identified.

Range seed coat (testa), micropyle, scar (hilum).

1.2 Plant parts of a germinated seedling are identified.

Range cotyledons, true leaves, stem, primary root.

Element 2

Sow and germinate seeds in containers.

Performance criteria

2.1 Media for seed sowing are identified.

Range may include but is not limited to – seed raising mix, vermiculite.

2.2 Seed sowing containers are identified.

Range punnets, trays.

2.3 Seeds are sown in containers in accordance with industry practices.

Range depth of seed, spacing, labels.

2.4 Seeds are germinated in containers in accordance with industry practices.

Element 3

Maintain and prick out seedlings.

Performance criteria

3.1 Seedlings are maintained in accordance with industry practices until the pricking out stage.

Range media moisture levels maintained, pest and disease free, cotyledons emerged, first true leaves formed.

3.2 Seedlings are hardened-off in accordance with industry practices prior to pricking out.

3.3 Seedlings are pricked out into seedling containers in accordance with industry practices.

Range minimum of 20 seedlings, even spacing, similar sized seedlings, no damage to seedlings, healthy seedlings.

3.4 Pricked out seedlings are grown and maintained in accordance with industry practices.

Range media moisture levels maintained, pest and disease free.

Element 4

Grow and maintain plants in containers.

Performance criteria

4.1 Seedlings are hardened-off in accordance with industry practices prior to potting up.

4.2 Seedlings are selected and individually potted into containers in accordance with industry practices.

Range containers may include but are not limited to – potting bags, pots.

4.3 Potted plants are maintained in accordance with industry practices.

Range media moisture levels maintained, pest and disease free.

4.4 Plants are presented when there is evidence of at least three new internodes of growth on each plant (growing on stage).

Range at least 12 plants.

Element 5

Keep a diary record of the growth of plants from sowing of seeds to the growing on stage (three new internodes of growth).

Performance criteria

5.1 A record is kept of the procedures undertaken in the preparation of the seeds for sowing and the sowing process.

5.2 A weekly record is kept describing care and maintenance of the seeds and seedlings up until the containerised plants reach the stage of three internodes of growth on each plant.

Range may include but is not limited to – watering, plant and root growth, pests and diseases, other environmental conditions.