Title	**Demonstrate knowledge of tree biology, and impacts of arboriculture maintenance activities on tree biology**		
Level	**4**	**Credits**	**5**

Purpose	People credited with this unit standard are able to demonstrate knowledge of: tree anatomy and morphology; and tree growth processes and life cycles; and the impacts of tree maintenance activities.

Classification	Horticulture > Arboriculture

Available grade	Achieved

Guidance Information

1 The reference relevant to this standard includes but is not limited to:
- Dr. Alex L. Sligo; *Modern Arboriculture: A Systems Approach to the Care of Trees and Their Associates*; USA, January 1991.

2 Definition
Compartmentalisation of Decay in Trees (CODIT) – a model that describes the processes that occur when a tree is wounded, by mechanical injury or by pruning. CODIT is the natural process that isolates damaged or diseased areas from health tissue surrounding the wound. The purpose of CODIT is to resist or prevent the spread of pathogens into the wood exposed by the injury. It also functions to separate a branch that has died from the living portion it is attached to and resists the entry of decay-causing pathogens into the exposed wood.

Outcomes and performance criteria

Outcome 1

Describe tree anatomy and morphology, and the impacts of arboriculture tree maintenance activities.

Performance criteria

1.1 Describe cell types present in trees in terms of their function and role in CODIT.

1.2 Describe tree tissue structure and function in terms of the inter-relationship between tissue types.

Range phloem, xylem, meristems, epidermis, storage tissues.

1.3 Describe tree morphological structure adaptations in terms of the changes which take place in tree elements during growth.

Range tree elements, unit roots, stems, leaves, fruit.

1.4 Describe the impacts of arboriculture tree maintenance activities on tree anatomy and physiology.

Range propagation, planting, training and pruning.

1.5 Describe the importance of timing of arboriculture tree maintenance activities to minimise negative impacts on tree anatomy and physiology.

Range propagation, planting, training, pruning.

Outcome 2

Demonstrate knowledge tree growth processes and life cycles, and the impacts of tree maintenance activities.

Performance criteria

2.1 Describe ways in which trees adapt to their growing environments in terms of how these adaptations can be used in tree management.

Range evidence of two adaptations is required.

2.2 Describe the implications of a range of tree growth processes and life cycles in terms of tree management.

Range evidence of two tree growth processes is required.

2.3 Describe the impacts of arboriculture activities on tree growth processes and life cycles.

Range propagation, planting, growing, training, pruning.

2.4 Describe the impacts of pruning techniques on tree sustainability.

Range crown reduction, crown lifting, crown thinning, dead and diseased wood removal, form pruning.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 March 2021	N/A

Consent and Moderation Requirements (CMR) reference	0032

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the Primary ITO standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.