Title	**Demonstrate knowledge of textile dyeing**		
Level	**3**	**Credits**	**12**

Purpose	People credited with this unit standard are able to: demonstrate knowledge of colour theory and dyes and chemicals used in textile colouration; and describe the textile dyeing process; dyeing methods and equipment; and dyed product performance, for textile dyeing.

Classification	Textiles Manufacture > Textile Dyeing and Finishing

Available grade	Achieved

Guidance Information

1 Legislation relevant to this unit standard includes but is not limited to the: Health and Safety at Work Act 2015.

2 Definition
Workplace procedures refers to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, site safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, and procedures to comply with legislative and local body requirements.

3 Assessment information
- a All evidence must be in accordance with workplace procedures.
- b Competence is intended to be demonstrated using chemicals, processes, and machinery used in the workplace.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of colour theory for textiles dyeing.

Performance criteria

1.1 Light is described in terms of the electromagnetic wave spectrum.

Range may include but is not limited to – ultraviolet, visible, infrared.

1.2 Formation of colour is described in terms of colour mixing theories.

Range may include but is not limited to – additive mixing, subtractive mixing, reflection, absorption, primary colours, secondary colours.

1.3 Metamerism is described in terms of effect on apparent colour viewed under different lighting conditions.

Range may include but is not limited to – daylight, tungsten light, fluorescent light.

Outcome 2

Demonstrate knowledge of dyes and chemicals used in textile colouration.

Performance criteria

2.1 Textile colourants are compared in terms of their origins, properties, applications, and end-use.

Range may include but is not limited to – natural dyes, synthetic dyes.

2.2 Dyestuff classes are compared in terms of their suitability for use with common substrates.

Range classes may include but are not limited to – acid, chrome, metal complex, reactive, direct, sulphur, vat, cationic;
substrates may include but are not limited to – wool, other animal fibre, nylon, cellulosic, acrylic, polyester.

2.3 Chemical treatments carried out prior to dyeing are described.

Range may include but is not limited to – bleaching, desizing, metal sequestering, scouring, wetting.

2.4 Chemical treatments used during dyeing are described in terms of reasons for treatment.

Range may include but is not limited to – anti-foam, buffer, de-aeration, dispersion, exhaustion, carriers, levelling, fibre protection.

2.5 Chemical treatments carried out after dyeing are described in terms of the reasons for treatment.

Range may include but is not limited to – enzyme application, fixation, dye fastness improvement, loose dye removal.

Outcome 3

Describe the textile dyeing process.

Performance criteria

3.1 Dyeing is described in terms of dyeing phases.

Range approach, adsorption, diffusion, migration, fixation.

3.2 Factors that influence dye levelness are described for inherent dyestuff features, dye bath conditions, mechanical features of dyeing machine, control of the dyeing cycle, and uniformity of the substrate.

Outcome 4

Describe dyeing methods and equipment.

Performance criteria

4.1 The methods used for textile dyeing are described in terms of process.

Range dyeing – exhaust, continuous.

4.2 Dyeing machines are described in terms of function and operation.

Range may include but is not limited to – loose stock, hank.

Outcome 5

Describe dyed textile product performance.

Performance criteria

5.1 Dyed product performance characteristics are described in terms of their assessment method and effects on products in use.

Range may include but is not limited to – light fastness, rub fastness, wash fastness.

Planned review date	31 December 2026

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 October 1995	31 December 2019
Revision	2	8 August 1997	31 December 2019
Revision	3	18 July 2000	31 December 2019
Revision	4	10 October 2001	31 December 2019
Revision	5	15 January 2004	31 December 2019
Rollover	6	25 July 2007	31 December 2019
Review	7	17 April 2009	31 December 2019
Review	8	19 May 2016	31 December 2025
Review	9	24 March 2022	N/A

Consent and Moderation Requirements (CMR) reference	0030

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

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.