Field Sciences

Review of *Science* unit standards

Subfield	Domain	ID
Science	Biochemistry	8043, 8044, 8046, 8049, 8058, 8059, 26486-26491
	Immunology	26492
	Microbiology	8022-8025, 8027, 8028, 8030, 8032, 8033, 8035-8038, 8040, 8042, 12366, 12367, 12369, 12370, 12460, 26109-26116
	Molecular Biology	8050, 8065, 8067, 8070, 26493, 26494
	Science - Core	8029, 8091, 8096, 8440, 8441, 8466, 8467, 12368, 20885, 20886, 26117, 26344, 26346, 26347, 27388

NZQA National Qualifications Services (NQS) has completed the review of the unit standards listed above.

Date new versions published **September 2018**

Planned review date **December 2023**

Summary

The unit standards were due for review as part of the NQS regular review cycle. Stakeholders were consulted and supported the re-registration of the standards.

Main changes

- The standards listed above except, unit standard 27388, were transferred to CMR 0113 from CMR 0152.
- The standards were formatted to align with current template.
- Minor changes to Guidance Information to update legislation and references.

Detailed list of unit standards – classification, title, level, and credits

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Sciences > Science > Biochemistry

ID	Title	Level	Credit	Review Category
8043	Perform spectrophotometric analyses	5	3	B
8044	Perform laboratory centrifugation techniques	4	1	B
8046	Perform high pressure liquid chromatography	6	3	B
8049	Precipitate a protein and perform a dialysis	4	2	B
8058	Demonstrate knowledge of plant biochemistry	6	6	B
8059	Demonstrate knowledge of animal biochemistry	6	6	B
26486	Perform paper, thin layer, and column chromatography	5	4	B
26487	Explain the characteristics of enzymes	5	3	B

ID	Title	Level	Credit	Review Category
26488	Determine enzyme activity	5	4	B
26489	Demonstrate knowledge of the structure and function of lipids	5	4	B
26490	Demonstrate knowledge of the structure, properties, and functions of amino acids and proteins	5	4	B
26491	Discuss the cellular metabolism of glucose, amino acids, and fatty acids	6	6	B

Sciences > Science > Immunology

ID	Title	Level	Credit	Review Category
26492	Demonstrate and apply knowledge of the immune system	6	6	B

Sciences > Science > Microbiology

ID	Title	Level	Credit	Review Category
8022	Demonstrate knowledge of microbial-animal interactions	6	6	B
8023	Demonstrate and apply knowledge of microorganism biochemical pathways	5	6	B
8024	Demonstrate knowledge of bacterial structure	5	3	B
8025	Describe plant microbiology	6	3	B
8027	Describe microbial biodeterioration, biodegradation, and bioremediation **Describe biofilms, microbial biodeterioration, biodegradation, and bioremediation**	6	4	B
8028	Describe soil microbiology	5	4	B
8030	Test food for spoilage organisms and pathogens	6	6	B
8032	Perform viral detection techniques	6	4	B
8033	Culture and identify fungi to division level	5	3	B
8035	Carry out visualisation and measurement of microorganisms	4	4	B
8036	Describe the role of microorganisms in industrial processes	6	4	B
8037	Describe and identify major groups of protozoa	5	2	B
8038	Perform viable microbiological counting methods	5	3	B
8040	Perform aseptic laboratory techniques	4	4	B
8042	Apply principles of bacterial identification	5	6	B
12366	Describe viral impact on host cells	5	5	B
12367	Demonstrate knowledge of minimising contamination risk in a microbiological laboratory	4	3	B
12369	Demonstrate knowledge of bacterial genetics	5	6	B
12370	Isolate a plant pathogen	6	4	B
12460	Demonstrate knowledge of the microbiology of air	6	2	B
26109	Culture microorganisms	5	4	B
26110	Control microbial growth	5	3	B
26111	Describe and explain the role and treatment of microorganisms in wastewater	5	3	B
26112	Demonstrate microbiological analysis of water quality	6	4	B
26113	Design and perform microbiological sampling for laboratory analysis	6	4	B
26114	Perform methods for animal tissue culture	6	5	B
26115	Perform methods for plant tissue culture	6	3	B

ID	Title	Level	Credit	Review Category
26116	Explain cultivation of microorganisms in bioreactor systems	6	4	B

Sciences > Science > Molecular Biology

ID	Title	Level	Credit	Review Category
8050	Perform electrophoresis	5	3	B
8065	Perform a restriction enzyme digestion	6	3	B
8067	Perform a polymerase chain reaction (PCR)	6	3	B
8070	Demonstrate knowledge of gene structure, replication, and expression	5	5	B
26493	Purify Nucleic Acids	6	4	B
26494	Demonstrate knowledge of recombinant DNA techniques	6	4	B

Sciences > Science > Science - Core

ID	Title	Level	Credit	Review Category
8029	Work safely in a microbiological laboratory	4	2	B
8091	Use and maintain a light microscope	4	2	B
8096	Conduct a scientific experiment with guidance	4	5	B
8440	Comply with quality management procedures in an accredited laboratory	6	10	B
8441	Describe laboratory quality systems	5	4	B
8466	Demonstrate competent use of laboratory measurement and recording procedures	4	4	B
8467	Work safely in a chemical laboratory	4	3	B
12368	Demonstrate knowledge of the hazard analysis critical control point (HACCP) system	6	4	B
20885	Manage hazardous substances compliance in a science laboratory	6	8	B
20886	Demonstrate knowledge of hazardous substances in science laboratories and related legislation	6	5	B
26117	Work safely in a science laboratory	3	2	B
26344	Use a laboratory information management system	4	2	B
26346	Write a scientific report based on results of a scientific process in an industrial or research laboratory	5	10	B
26347	Write, and present orally, a scientific report in an industrial or research laboratory	6	30	B
27388	Demonstrate knowledge of units, notation, and calculations in science	4	4	B