

Field Sciences**Review of Science unit standards**

Subfield	Domain	ID
Science	Agricultural and Horticultural Science	9770-9772
	Earth Science	8137-8152, 12364, 12365, 14398
	Food Science	9823-9833, 14378-14397, 16751-16755
	Physics	8640-8649

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

Date new versions published**June 2010****Summary**

NQS identified that standards in the domains Food Science, Physics, Agricultural and Horticultural Science, and Earth Science had low or no usage. It was proposed that the standards be designated expiring as they are no longer fit for purpose and they no longer meet the needs of the sector.

All accredited providers were consulted and feedback was sought on the decision to expire these Level 4, 5, and 6 standards. There were no issues raised regarding the expiry of these standards.

The domain *Food Science* has also been designated expiring (lapsing) as NQS has no plans to develop new standards for this domain.

Main changes

- All standards in this review were designated expiring.
- The domain *Food Science* was designated expiring (lapsing).

Category D unit standards will expire at the end of December 2013**Impact on classifications**

The domain *Food Science* has been designated expiring (lapsing) and will expire when all the standards classified within it expire.

Impact on registered qualifications

Key to type of impact	
Affected	The qualification lists a reviewed classification (domain or subfield) in an elective set The qualification lists a standard that has changes to level or credits The qualification lists a C or D category standard
Not materially affected	The qualification lists a standard that has a new title The qualification lists a standard that has a new classification

The following NQS qualifications are impacted by the outcome of this review and will be updated when they reviewed in 2010. The classifications and/or standards that generated the status *Affected* are listed in **bold**.

Ref	Qualification Title	Classification or ID
0233	National Certificate in Science	Food Science
0235	National Diploma in Science (Level 6) with optional strands in Biology, Chemistry, Food Science, Microbiology, and Molecular Biology/Biochemistry	8151

The following table identifies qualifications developed by other SSBs that are impacted by the outcome of this review. The SSB has been advised that the qualifications require revision. The standards that generated the status *Affected* are listed in **bold**.

Ref	Qualification Title	Classification or ID	SSB Name
0591	National Certificate in Baking (Plant Baking) (Level 4) with strands in Bread, Biscuit, Cake, and Pastry	Food Science	Competenz
1267	National Certificate in Baking (Instore/Franchise) (Level 4)		
0453	National Diploma in Surveying (Level 6) with an optional strand in Mine Surveying	8643, 8644, 8645, 8646	InfraTrain New Zealand
0640	National Certificate in Design (Draughting) (Level 2)	8641	

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 > Agricultural and Horticultural Science

ID	Title	Level	Credit	Review Category
9770	Evaluate a current international issue which impacts on New Zealand primary production	4	6	D
9771	Evaluate the impact of a technological development on a New Zealand primary production system	4	6	D
9772	Research and report on literature related to an aspect of the primary production industry	4	6	D

Sciences > Science > Earth Science

ID	Title	Level	Credit	Review Category
8137	Collect geophysical data and samples	5	6	D
8138	Collect geotechnical data and samples	5	4	D
8139	Collect geological data and rock samples	5	6	D
8140	Investigate, interpret and report on geological features, landforms and active processes of a site	4	5	D
8141	Describe and classify soils using soil maps and pedological methods	5	5	D
8142	Identify and classify rock and soil materials for geotechnical purposes	5	6	D
8143	Describe, assess and report on a contaminated site	6	8	D
8144	Model subsurface geological features from geophysical and geological data	5	4	D
8145	Read geological maps and interpret geological history	4	4	D
8146	Read and interpret geophysical maps	5	4	D
8147	Demonstrate a knowledge of the interior of the Earth and geophysical fields	4	4	D
8148	Describe biogeochemical cycling of elements	5	4	D
8149	Perform sedimentological and paleontological analyses	6	6	
8150	Analyse wastewaters and demonstrate an understanding of wastewater treatment and discharge	5	10	D
8151	Perform soil chemical analysis	6	6	D
8152	Collect water samples for analysis	4	4	D
12364	Demonstrate knowledge of soil formation and structure	6	4	D
12365	Demonstrate knowledge of soil fertility	6	4	D
14398	Describe, assess and report on a degraded landform	6	7	D

Sciences > Science > Food Science

ID	Title	Level	Credit	Review Category
9823	Demonstrate knowledge of the evaluation of textural attributes of food and related products	5	3	D
9824	Demonstrate knowledge of the evaluation of flavour of food and related products	5	4	D
9825	Demonstrate knowledge of the evaluation of colour of food and related products	6	3	D
9826	Demonstrate knowledge of the process for sensory evaluation tests for food and related products	6	4	D
9827	Carry out sampling procedure for food and related products	4	2	D
9828	Demonstrate knowledge of enzymatic, chemical, and physical factors in the spoilage of food	4	3	D

ID	Title	Level	Credit	Review Category
9829	Demonstrate knowledge of factors affecting plant efficiency as applied to food processing	4	3	D
9830	Demonstrate knowledge of food raw materials	4	3	D
9831	Demonstrate knowledge of food process flow diagrams	4	3	D
9832	Demonstrate knowledge of the physical structure of solid food raw materials	4	2	D
9833	Demonstrate knowledge of water treatment and analyses	4	3	D
14378	Demonstrate knowledge of food preservation principles, and the nature of food processes	5	3	D
14379	Determine pumping requirements for a fluid food process	5	1	D
14380	Demonstrate knowledge of food preservation by the application of heat and anaerobic packaging	5	2	D
14381	Demonstrate knowledge of food preservation by the application of heat and aerobic packaging	5	1	D
14382	Demonstrate knowledge of heat transfer and heat exchange equipment used in food processing	5	3	D
14383	Demonstrate knowledge of the nutritional and energy providing aspects of human food	4	2	D
14384	Demonstrate knowledge of food preservation by heat removal (chilling)	5	1	D
14385	Demonstrate knowledge of vapour recompression refrigeration systems used in food processing	5	2	D
14386	Demonstrate knowledge of food preservation by heat removal (freezing)	5	2	D
14387	Demonstrate knowledge of food dispersions	6	4	D
14388	Demonstrate knowledge of the structure, function and food uses of lipids	5	8	D
14389	Demonstrate knowledge of the structure, properties and food uses of carbohydrates	5	8	D
14390	Demonstrate knowledge of the structure, properties and food uses of amino acids and proteins	5	6	D
14391	Demonstrate knowledge of nutrition and metabolism	5	6	D
14392	Demonstrate knowledge of the structure, properties and food uses of enzymes	5	4	D
14393	Demonstrate knowledge of food preservation by water removal (concentration)	5	1	D
14394	Demonstrate knowledge of food preservation by water removal (drying)	5	1	D
14395	Demonstrate knowledge of methods used for the separation of food components	5	2	D
14396	Demonstrate knowledge of methods used for the reduction of particle sizes in food processing	5	1	D

ID	Title	Level	Credit	Review Category
14397	Describe a special technique for the preservation of food	5	1	D
16751	Interpret and apply legislation relevant to the food scientist	6	2	D
16752	Analyse food packaging requirements and formulate a packaging solution	6	6	D
16753	Apply quality management principles in the development of a food safety programme and an HACCP plan	6	4	D
16754	Produce a technical report on a food processing system	6	6	D
16755	Produce a quality control plan for a food production process	6	4	D

Sciences > Science > Physics

ID	Title	Level	Credit	Review Category
8640	Demonstrate knowledge of the physics of simple fluid systems	4	3	D
8641	Demonstrate knowledge of the physics of the properties of materials under stress	4	3	D
8642	Determine quantities for gas systems	4	1	D
8643	Demonstrate knowledge of wave theory	4	3	D
8644	Demonstrate knowledge of geometric optics	4	4	D
8645	Demonstrate knowledge of electrostatics	4	3	D
8646	Demonstrate knowledge of electromagnetics	4	4	D
8647	Demonstrate knowledge of the sources, effects and detection of radioactivity	4	4	D
8648	Demonstrate knowledge of fundamental concepts of quantum theory and special relativity	5	3	D
8649	Demonstrate a knowledge of static systems and simple machines	4	3	D