

Achievement Standard

Subject Reference	Processing Technologies 3.60		
Title	Implement complex procedures to process a specified product		
Level	3	Credits	6
		Assessment	Internal
Subfield	Technology		
Domain	Processing Technologies		
Status	Registered	Status date	4 December 2012
Planned review date	31 December 2016	Date version published	12 December 2013

This achievement standard involves implementing complex procedures to process a specified product.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Implement complex procedures to process a specified product. 	<ul style="list-style-type: none"> Skilfully implement complex procedures to process a specified product. 	<ul style="list-style-type: none"> Efficiently implement complex procedures to process a specified product.

Explanatory Notes

- 1 This achievement standard is derived from Level 8 of the Technology learning area in *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007; and is related to the material in the *Teaching and Learning Guide for Technology*, Ministry of Education at <http://seniorsecondary.tki.org.nz>.

Further information can be found at <http://www.technology.tki.org.nz/>.

Appropriate reference information is available in *Safety and Technology Education: A Guidance Manual for New Zealand Schools*, Ministry of Education at <http://technology.tki.org.nz/Curriculum-support/Safety-and-Technology-Education>, and the Health and Safety in Employment Act 1992.

- 2 *Implement complex procedures to process a specified product* involves:
- creating a flow diagram showing the interactions between processing operations and tests
 - executing processing operations and tests in accordance with the steps set out in the flow diagram
 - modifying processing operations in response to testing feedback
 - undertaking accurate testing using replicate measurements

- explaining processing operations and how reliable test feedback can be used to inform choice of processing operations, equipment, time, temperature and/or techniques for processing the product
- calculating yield
- calculating actual financial costs per unit of finished product
- developing and implementing a health and safety plan and a quality assurance plan.

Skilfully implement complex procedures to process a specified product involves:

- showing independence and accuracy when executing complex procedures
- predicting costs and comparing actual and predicted costs per unit of finished product.

Efficiently implement complex procedures to process a specified product involves:

- executing complex procedures in a manner that economises time, effort and materials, taking into account yield and cost.

- 3 *To process* refers to the combining and/or manipulating of materials to make a product.
- 4 Materials may include: food ingredients, plant extracts, micro-organisms, concrete, fibre glass, woodchips, recycled materials, and resins.
- 5 *Specified product* refers to a product that requires complex procedures in order to meet the specifications, including material specifications. The specifications must be of sufficient rigour to allow the student to meet the standard. The specifications need to be agreed prior to the product being made. They may be teacher-given or developed in negotiation with the student.
- 6 Products may include: fermented or non-fermented foods and beverages, biologically active products, household chemicals, toiletries, cosmetics, paper, and resin or fibreglass products.
- 7 *Complex procedures* are those that require a diverse range of processing operations to be performed in a particular order based on knowledge of techniques, operations, and testing feedback.
- 8 Testing may include tests for: viscosity, sensory attributes, brix, moisture content, nutritional content using tables, presence (or absence) of microbial activity, degree of fermentation, colour stability, strength, density, water activity, and process mass balance.
- 9 Financial costs include costs of materials, packaging, energy, and labour.
- 10 A health and safety plan is a plan that ensures personal, product, and environmental safety when executing procedures in a school environment. The plan is based on an analysis of hazards and critical control points related to the procedures, product, and environment, and mitigates risk related to the processing and use of the product.
- 11 A quality assurance plan sets out testing procedures and corrective responses to ensure the product meets its specifications.

- 12 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-aligned-standards/Technology/Level-3-Technology>.
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Replacement Information

This achievement standard replaced unit standard 7532, unit standard 7542, unit standard 13394, unit standard 13399, AS90679, and AS90683.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233