

Achievement Standard

Subject Reference	Digital Technologies 1.9		
Title	Demonstrate understanding of searching and sorting algorithms		
Level	1	Credits	3
		Assessment	Internal
Subfield	Technology		
Domain	Digital Technologies		
Status	Registered	Status date	23 November 2017
Planned review date	31 December 2020	Date version published	23 November 2017

This achievement standard requires demonstrating understanding of searching and sorting algorithms.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of searching and sorting algorithms. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of searching and sorting algorithms. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of searching and sorting algorithms.

Explanatory Notes

- This achievement standard is derived from Level 6 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/Technology-in-the-NZC/Safety-in-Technology-Education-revised-2017>, and the Health and Safety at Work Act 2015.

This standard is also derived from Te Marautanga o Aotearoa. For details of Te Marautanga o Aotearoa outcomes to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Demonstrate understanding of searching and sorting algorithms* involves:
- describing applications of searching and sorting
 - carrying out a searching algorithm accurately
 - carrying out a sorting algorithm accurately
 - describing how the cost for a chosen searching or sorting algorithm changes as the size of the problem increases.

Demonstrate in-depth understanding of searching and sorting algorithms involves:

- explaining the relationship between searching and sorting
- determining the best, average, and worst-case costs of two searching or sorting algorithms and explaining the implications.

Demonstrate comprehensive understanding of searching and sorting algorithms involves:

- discussing real-world usage and implications of searching and sorting algorithms
 - investigating the cost of searching or sorting algorithms with different data sets.
- 3 Examples of different data sets include different sizes, sorted, unsorted and inverse order.
- 4 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.
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Replacement Information

This achievement standard replaced AS91074.

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