

## Achievement Standard

<b>Subject Reference</b>	Digital Technologies 1.48		
<b>Title</b>	Implement basic interfacing procedures in a specified electronic environment		
<b>Level</b>	1	<b>Credits</b>	3
		<b>Assessment</b>	Internal
<b>Subfield</b>	Technology		
<b>Domain</b>	Digital Technologies		
<b>Status</b>	Registered	<b>Status date</b>	20 January 2011
<b>Planned review date</b>	31 December 2019	<b>Date version published</b>	17 November 2016

This achievement standard involves implementing basic interfacing procedures in a specified electronic environment.

### Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>Implement basic interfacing procedures in a specified electronic environment.</li> </ul>	<ul style="list-style-type: none"> <li>Skilfully implement basic interfacing procedures in a specified electronic environment.</li> </ul>	<ul style="list-style-type: none"> <li>Efficiently implement basic interfacing procedures in a specified electronic environment.</li> </ul>

### 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/Curriculum-support/Safety-and-Technology-Education>, 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* achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Implement basic interfacing procedures in a specified electronic environment* involves:
- choosing appropriate component types and values for the interface eg choosing a resistor to balance an LDR in a voltage divider by testing the resistance of the LDR in dark and light conditions
  - writing basic functional interface software given simple programme structures
  - testing and debugging a functional model of the interface.

*Skilfully implement basic interfacing procedures in a specified electronic environment* involves:

- writing annotated, functional, readily understandable interface software.

*Efficiently implement basic interfacing procedures in a specified electronic environment* involves:

- use datasheets or calculations to assist in choosing appropriate component types and values for the interface eg the best value for a protection resistor for an LED, given the LED's maximum current and voltage
- writing well-structured and clearly annotated interface software.

- 3 *A specified electronic environment* refers to a functional combination of hardware and embedded software that performs to the 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 implementation of interfacing procedures. They may be teacher-given or developed in negotiation with the student. Typical examples of specifications will relate to the monitoring and control of variables in both hardware and software (eg greenhouse temperature control, barrier arm control).

- 4 *Basic interfacing procedures* relate to the selection, testing and debugging of the hardware and software that allow different devices to work together to meet the given specifications for the specified electronic environment.

*Basic interfacing procedures* may include but are not limited to:

- selecting the best type and value of components
- selecting the best arrangement of components
- adjusting hardware input and/or output parameters
- adjusting software parameters
- using a multimeter to measure and report voltage and/or current levels at indicated points.

- 5 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

**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