Achievement Standard

Subject Reference Digital Technologies and Hangarau Matihiko 3.6

Title Use complex techniques to develop a network

Level 3 **Credits** 4 **Assessment** Internal

Subfield Technology

Domain Digital Technologies

Status Registered **Status date** 29 November 2018

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This achievement standard involves using complex techniques to develop a network.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Use complex techniques to develop a network.	• Use complex techniques to develop an informed network.	• Use complex techniques to develop a refined network.

Explanatory Notes

1   This achievement standard is derived from 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   *Use complex techniques to develop a network* involves:
- explaining networking concepts
- using appropriate tools, procedures, protocols and techniques when installing and configuring hardware (including peripherals) and software
- undertaking a range of appropriate testing, diagnostic and troubleshooting procedures to identify and resolve setup and configuration errors
- investigating the parts and components (hardware and software) to be used
- addressing relevant implications.

Use complex techniques to develop an informed network involves:
- explaining the OSI model and the impact of layers in the design of the network
- evaluating and applying information gained from testing, diagnostic and troubleshooting procedures to inform development and improve the quality of the network
- explaining the purpose, function and behaviour of the parts and components (hardware and software) used.

Use complex techniques to develop a refined network involves:
- independently and accurately using tools, procedures, protocols and techniques when installing and configuring hardware and software to ensure the network meets end user requirements
- justifying the selection of parts and components (hardware and software).

3   Examples of *relevant implications* include:
- social
- cultural
- legal
- ethical
- intellectual property
- privacy
- accessibility
- usability
- functionality
- aesthetics
- sustainability and future proofing
- end-user requirements
- health and safety.

4   Examples of *protocols* include: SMB, NTP, DNS, IPV4/IPV6, IP addressing and ICMP.

5   Examples of *complex techniques* include:
- configuring shared access to files, printers, ports and miscellaneous communications between nodes on a network
- configuring appropriate protocols
- server configuration.

6   *Networking concepts* include:
- the Open System Interconnection (OSI) model
- ICMP (Internet Control Message Protocol)
- data transmission modes (Unicast, Broadcast, and Multicast).

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

Replacement Information

This Achievement Standard replaced AS91641 and AS91642.

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