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National  
Assessment  
Program  
ICT Literacy  
Years 6 & 10  
School  
Assessment  
Exemplars

2011

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## **Information and Communication Technology Literacy**

The information and assessment materials in these resources have been designed to assist teachers to gauge their own students' proficiency in Information and Communication Technology (ICT) literacy. By examining modules from the National Year 6 and Year 10 NAP – ICT Literacy Assessment teachers may be able to design similar tasks and to judge their students' proficiency in relation to the national standards in ICT literacy.

It is anticipated that teachers will be able to reflect on this information to enhance teaching and monitoring programs in Australian schools.

### **Background**

The National Assessment Program originated with the work of the MCEETYA National Education Performance Monitoring Taskforce (NEPMT), and later the Performance Measurement and Reporting Taskforce (PMRT), which developed key performance measures to monitor and report on progress towards the achievement of goals for schooling on a nationally comparable basis. Sample-based assessment surveys were initiated in Science Literacy, Civics and Citizenship, and ICT Literacy on a rolling triennial basis. The first of these was the sample assessment of Science Literacy in Year 6 conducted in 2003. The first national assessment in Civics and Citizenship was conducted in 2004 and the first national assessment in ICT Literacy was conducted in 2005. The information and assessment material in these resources have been taken from the third assessment cycle of NAP – ICT Literacy conducted in 2011.

The definition of ICT Literacy adopted by MCEETYA for use in the National Assessment Program was,

*the ability of individuals to use ICT appropriately to access, manage, integrate and evaluate information, develop new understandings, and communicate with others in order to participate effectively in society (MCEETYA, 2005).*

This definition, together with an elaboration through a set of six key processes, and a broad description of progress according to three strands form the basis of the NAP – ICT Literacy Assessment Domain (MCEETYA, 2005) which consistently describes the foundation of the work across the three cycles of NAP – ICT Literacy.

The assessment of ICT literacy is part of a national plan to monitor and report on student achievement progressively against the National Goals for Schooling in the Twenty-first Century. The National Goals and the importance of monitoring student achievement in relation to them were agreed to by all State, Territory and Federal Education Ministers in 1999 and have been reaffirmed in the Melbourne Declaration on the Educational Goals for Young Australians in 2008.

Public Reports from the three cycles of NAP – ICT Literacy can be downloaded from the National Assessment Program website at:

[http://www.nap.edu.au/Test\\_Results/National\\_reports/index.html](http://www.nap.edu.au/Test_Results/National_reports/index.html)

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## **ICT Literacy Assessment Domain**

The ICT literacy assessment domain, which defines the scope of the National ICT Literacy Assessment materials, was developed in consultation with a number of national committees that were established to ensure the assessment domain was inclusive of the different State and Territory curricula and that the items in the assessments were fair for students, irrespective of where they attended school.

The ICT literacy assessment domain includes six processes:

- *Accessing information* — identifying the information needed and knowing how to find and retrieve information
- *Managing information* — organising and storing information for retrieval and re-use
- *Evaluating* — reflecting on the processes used to design and construct ICT solutions and making judgements regarding the integrity, relevance and usefulness of information
- *Developing new understandings* — creating information and knowledge by synthesising, adapting, applying, designing, inventing or authoring
- *Communicating with others* — exchanging information by sharing knowledge and creating information products to suit the audience, the context and the medium
- *Using ICT appropriately* — making critical, reflective and strategic ICT decisions and using ICT responsibly by considering social, legal and ethical issues.

The ICT literacy assessment domain also identifies three strands, which describe the contexts in which the ICT literacy processes can be demonstrated. The three ICT literacy strands are:

- *Strand A* – Working with information
- *Strand B* – Creating and sharing information
- *Strand C* – Using ICT responsibly.

The complete NAP – ICT Literacy Assessment Domain can be downloaded from the National Assessment Program website at:

[http://www.nap.edu.au/NAP\\_Sample\\_Assessments/Assessment\\_frameworks/index.html](http://www.nap.edu.au/NAP_Sample_Assessments/Assessment_frameworks/index.html)

The NAP – ICT Literacy 2011 Public Report contains a detailed discussion of the relationship between the NAP – ICT Literacy Assessment Domain and the Statements of Learning for ICT (AESOC, 2006) and the ICT General Capability (ACARA, 2012). The NAP – ICT 2011 Literacy Public Report can be downloaded from the National Assessment Program website at:

[http://www.nap.edu.au/Test\\_Results/National\\_reports/index.html](http://www.nap.edu.au/Test_Results/National_reports/index.html)

## **The 2011 Assessment Modules**

The 2011 ICT Literacy assessment instrument consisted of seven discrete thematic modules. One module, the General Skills Test, included only simple software skills

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performance and multiple-choice assessment items, this module was also used in the 2005 and 2008 assessments. The remaining six modules, referred to as “Hybrid Assessment Modules” (HAMs), integrate skills simulations, performance and multiple choice items with large open ended tasks using live software applications. Two of the HAMs were carried over from the 2008 assessment and four new HAMs were developed for use 2008.

Each student was administered two modules from previous cycles and two new modules appropriate to their year level. The modules were randomly assigned to the students.

### ***Screen Layout***

In order to provide a consistent testing experience for all students the screen layout and test environment were predefined and uniform. The screen layout includes an outer static border that houses test information for students such as the name of the module they are completing, the time remaining and their progress through the tasks in that module. At the bottom of the screen there is a section containing the task instructions or questions for students to complete and a large central space in the screen contains the dynamic information or software that students use to answer questions and complete tasks. Students were not able to exit the test environment nor were they able to progress beyond the end of each individual module without the assistance of the test administrator.

### ***Hybrid Assessment Modules***

Each HAM has a single unifying theme. Typically the HAMs begin with a number of simulated performance tasks, multiple-choice and short-constructed response items and conclude with a single integrated task using at least one live software application. Typically the initial tasks require students to manage files; perform simple software functions (such as inserting pictures into files); search for information; collect and collate information; evaluate and analyse information; and perform some simple reshaping of information (such as drawing a chart to represent numerical data).

Within each module the questions and tasks follow a narrative sequence in which information is typically collected and developed in preparation for the final information product. As a consequence of this, many later items in each module contain information that could be used to answer or complete earlier items. For example, in one module students are asked to prepare a pie chart using a spreadsheet. Later in the same module students are allowed to use the pie chart as part of a presentation. In order not to penalise students who had not correctly completed the original pie chart, an ideal pie chart is made available as a resource for students when they are required to complete the presentation. Clearly students could have seen the ideal pie chart as a model to complete the earlier question and so, in order to prevent students from correcting previous errors on the basis of information later in the test, students had to complete all tasks and questions in each module in a uniform narrative sequence. Students were not able to move back to previous tasks once they had completed them. Students were able to leave out tasks by simply not providing a response and pressing an “I’ve finished” button, but they were not at any time able to return to these tasks once they had moved on.

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## ***Question and Task Types***

### **Multiple-choice and Short Constructed Response Questions**

Each HAM contains a small number of multiple-choice and short constructed response questions. These questions are used to assess student knowledge and understanding of specific ICT literacy concepts and to allow students to provide analysis of information (such as to make a judgement about the apparent trustworthiness of information on a webpage). All multiple-choice questions were automatically scored and students' short constructed responses were stored as text for later marking by trained markers.

### **Software Application Skills Tasks**

Conceptually the software application tasks can be divided into two categories – *skills tasks* and *integrated tasks*. Skills tasks were designed to capture data on whether students were able to complete a task *at that point in time* without support or assistance. In essence, these simulated tasks can be considered as assessing whether students “know” the function they are being asked to execute.

The skills tasks comprise software simulations that automatically capture and score student responses. The skills tasks simulate normal functionality up until the point at which a student executes a function. At this point students are presented with a screen stating that “An action has been recorded” with the option for students to “Try again” or go to the next item. For example, if a student is asked to *cut* a section of selected text, when the student executes a command the “An action has been recorded” screen appears rather than the text disappearing from the screen where they have executed the command. In normal circumstances the student would know whether or not they have executed the *cut* command accurately by seeing the selected text disappear from the screen. As such, students would be able to use a trial-and-error approach to executing the desired skill. Because the skills tasks were designed to capture point-in-time knowledge, the simulations do not provide students with immediate feedback of their success. Students have the opportunity to select “Try again” once with each skills task (in case they are not sure whether they executed the function correctly) and after a second attempt are automatically moved to the next task. Students receive full credit on skills tasks for correctly executing them by any method (typically by using keyboard shortcuts, icons/buttons or dropdown menus).

### **Software Application Integrated Tasks**

The second category of software application tasks comprised larger communication tasks that are completed using “live” software applications such as: word processing, presentation software and spreadsheets; simple web-based databases and survey design software; and some adapted graphics and multimedia applications. Unlike the discrete skills tasks, the live tasks avail students of the full set of real-time feedback and functionality (including the *Help* function) of the live software applications. When completing the integrated tasks, students typically need to select, assimilate and synthesise the information they have been working with in the lead-up tasks and reframe the information to fulfil a specified communicative purpose. The audience and software related communicative context are specified to the students as part of the communicative purpose of each large task. Students spent between 40 per cent and 50 per cent of the time allocated for each module on the large task. The information products (such as documents, spreadsheets, presentations or graphics/multimedia

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files) were saved as complete files and scored by trained markers using criterion based scoring rubrics.

In comparison to the point-in-time knowledge information provided by the skills tasks, the live software tasks provide information on students' capacities to select, evaluate and transform and communicate information using real software. As indicated previously, additional ICT literacy achievement information was collected using a range of multiple-choice and short answer questions that were integrated into each module.

The scoring guides for the constructed response items and the criterion based assessment rubrics for the large tasks used in the assessment have been included for reference as part of the module demonstrations.

### ***Module Demonstrations***

The software used in the 2011 ICT literacy test was purpose-built and customised for use in the assessment. Unfortunately it is not possible to provide live working versions of the software for use in schools.

Three of the 2011 assessment modules have been made available for schools to view. These demonstration modules can be viewed either as PowerPoint presentations or as animated videos. The PowerPoint presentations are static screens of each of the assessment tasks and questions in each module. The videos show each module being completed. The responses in the video demonstration are designed to reflect typical rather than ideal student responses and as such do not always show the best possible response to each task.

### **Instructions for Viewing**

Each module presentation or demonstration video can either be:

1. **viewed online** directly by clicking on the 'Click here to play online' hyperlink; **or**
2. **downloaded and played** by clicking on the 'Click here to download and play' hyperlink.

### **About the Exemplar Modules**

Following is a brief description of the content of each of the two exemplar assessment modules with hyperlinks to play, or download and play, each module.

#### ***Language Preservation (Year 10 only)***

This module requires students to make use of a range of web-based tools (including collaboration software) to collect and correct information before scheduling a web-based meeting with their 'collaborators'. Language Preservation was used only at Year 10 because of the conceptual sophistication and reading level of the module content.

[Click here](#) to **play online** the 'Language Preservation' presentation

[Click here](#) to **download and play** the 'Language Preservation' presentation (Winzip required)

[Click here](#) to **play online** the 'Language Preservation' video

[Click here](#) to **download and play** the 'Language Preservation' video (Winzip required)

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[Click here](#) to **download** the ‘Language Preservation’ scoring guide (Winzip required)

### ***Saving Electricity (Years 6 and 10)***

This module requires students to make use of note-taking software to select (on the basis of credibility and usefulness) information from a set of web-based resources. Students were then required to make use of this information to create an information video by editing existing footage and adding their own captions and effects.

[Click here](#) to **play online** the ‘Saving Electricity’ presentation

[Click here](#) to **download and play** the ‘Saving Electricity’ presentation (Winzip required)

[Click here](#) to **play online** the ‘Saving Electricity’ video

[Click here](#) to **download and play** the ‘Saving Electricity’ video (Winzip required)

[Click here](#) to **download** the ‘Saving Electricity’ scoring guide (Winzip required)

### ***General Skills (Years 6 and 10)***

This module was developed for NAP – ICT Literacy 2005 as a “gatepost” test of basic ICT skills and was completed as the first module by all students. In 2005 it was used to direct a very small proportion of students to the two easiest remaining test modules. The module comprised a set of basic computing skills tasks and was very easy for the vast majority of students in both Years 6 and 10. Despite this, the module provided robust data over the cycles of NAP – ICT Literacy and it was retained in 2008 although no longer as a gatepost test. In 2011, the module was augmented by a set of newly developed items with the dual purposes of increasing the length of the module to match the other six and to increase the overall difficulty of this module. The newly developed items related to the manipulation of data in a spreadsheet to support the generation of graphs. These questions proved to be challenging for the students at both year levels.

[Click here](#) to **play online** the ‘General Skills’ presentation

[Click here](#) to **download and play** the ‘General Skills’ presentation (Winzip required)

[Click here](#) to **play online** the ‘General Skills’ video

[Click here](#) to **download and play** the ‘General Skills’ video (Winzip required)

[Click here](#) to **download** the ‘General Skills’ scoring guide (Winzip required)