Assessment Research Centre Online Tools (ARC Online Tools)

The Assessment Research Centre (ARC) has developed a range of online assessment and reporting tools (known as ARC Online Tools) that teachers can use to assess and receive feedback on the learning progress of their students. These materials form part of an integrated system that pioneers new approaches to assessment, reporting, and teachers’ professional development.

The assessments assist teachers to identify what a student is ready to learn by providing reports that identify each student’s place on a validated learning progression, thereby providing more detail and context than scores and grades alone.
ARC Online Tools covers the areas of 21st century skills, reading comprehension tests, numeracy tests, and a range of measures for students with additional needs. All tests produce reports that provide a rich description of a student’s current level of skills and understanding. Teachers are able to draw on this information to design teaching activities targeted at what a student is ready to learn and look ahead to that student’s future learning needs.

A variety of reports can be downloaded for individual students as well as classes on the same day as testing. Reports can be generated that chart a student’s learning in a single learning domain or across multiple domains. Student progress is also able to be tracked over time. All assessments have been developed through large-scale research studies conducted by the ARC within the Melbourne Graduate School of Education. The tests are easy to use, and teachers have assessed more than 700,000 students since 2009 using ARC Online Tools.

Online teacher professional development materials are linked to each set of tools. The materials include information about the assessments, how to interpret reports, and how to link advice in the reports to teaching and learning.

The ARC Online Tools objective

ARC Online Tools is designed to provide teachers with evidence about their students' current level of skills and understanding. This in turn informs teaching and optimises the learning experience and opportunities for all students. The tests enable targeted assessments and feedback on the strengths, abilities, and progress of individual students. Teachers are encouraged to use this information to plan and tailor their learning programs to meet the needs of each student.

What is ARC Online Tools?

The ARC provides a number of distinct online assessment tools. Several of these, as detailed below, are available for use under licence from the Melbourne Graduate School of Education:

**Students with Additional Needs (SWANS)**

Online tools that assess and report the learning progress of students who have additional needs

These tools enable the learning progress of students with additional needs to be assessed without the need for student tests. Rather, a teacher responds to the questions by drawing on knowledge of a student accumulated from everyday classroom observations and interactions with the student. The tools cover five learning areas: communication, literacy, social processes, learning skills, and emotional understanding. The SWANs assessments report against indicators of student proficiency and understanding that combine to build a comprehensive picture of the student’s strengths and abilities. Reports provide information on recommended and validated teaching strategies for students working at different levels of skill or understanding. The teacher is then able to draw on this information when planning and tailoring personalised learning programs. The learning progressions cover skills that range from a student’s supported experience of the classroom environment through to independent participation in learning. Each set of questions typically takes a teacher 5 to 10 minutes to complete. Further tools in digital literacy, numeracy, thinking skills, and movement are currently in development.

**Reading Comprehension**

**Reading Comprehension Tests**

Online tests of reading comprehension for primary and secondary school students

These tools enable teachers to select one of ten reading comprehension tests targeted at different levels of student skills and understanding. The tools provide maximum information about what each student can do, and what each student is ready to learn next. Students are placed on a learning progression that covers basic skills, such as understanding that text conveys meaning, through to more advanced understanding, such as critically reviewing information or interpreting complex thought processes behind a literary character’s point of view. All tests are linked and report against a single learning progression that caters for the range of diverse reading skills within a classroom. This allows teachers to recognise the range of reading skills within their classrooms and track students’ progress across time.

**Numeracy**

**Numeracy Tests**

Linked online multiple-choice tests that assess students’ numeracy skills

These linked multiple-choice tests cover the areas of number, geometry, measurement, and chance-and-data. A teacher is able to select a targeted test for each student and receive reports that chart numeracy development. Students are placed on a learning progression ranging from basic skills, such as counting, through to more sophisticated skills, such as solving complex algebraic problems. The tests were developed through research into how students learn, including how they develop the concepts and processes required for higher-order thinking in numeracy.
Underpinning the online tools are 10 principles of assessment that, through pioneering research conducted by the ARC, ensure the tools are consistent with state-of-the-art assessment, teaching and learning.

The 10 principles:

1. **Assessment must reflect a developmental or growth model**
   Instead of focusing on standards, a developmental model identifies what skills and knowledge a student has learned, and what the student is ready to be taught next.

2. **Assessment should identify the point of learning readiness for each student**
   This is the zone between the level in which a student is operating independently and the level in which the student requires assistance.

3. **Assessment is for teaching**
   Assessment information assists teachers in targeting their teaching at the point of learning readiness and maximises student learning.

4. **Reports emphasise skills not scores**
   Reports are expressed in terms of skill development rather than scores.

5. **Assessments given to students should match their ability**
   Selecting a test at the appropriate level of difficulty for each student provides more accurate information for teachers planning their instruction.

6. **Timely feedback to students and teachers is required**
   Same-day reporting allows teachers to use assessment information to inform their teaching.

7. **Teachers should be assisted in using assessment information for instructional purposes**
   Professional development materials assist teachers to design and plan targeted interventions.

8. **Reports describe or imply skills growth**
   Reporting student progress over time allows for growth to be monitored.

9. **The assessment should indicate the direction, order and magnitude of learning**
   Providing information about student learning along a learning progression provides a definitive sequence towards greater and deeper skill development.

10. **Continuous monitoring informs teaching and learning**
    Teachers are encouraged to monitor growth between pre-test and post-test using a range of observation and formal assessments.

**Conclusion**

ARC Online Tools provides assessment and reporting materials that are useful for teachers. These are used to identify individual students’ strengths, abilities, and learning progress across a range of areas and contexts. A key strength is that the teacher receives a report identifying a student’s place on a validated learning progression. Teachers are then able to use the information provided to plan and tailor their learning programs to meet the requirements of individual students.

The SWANs materials were developed with the support of the Australian Research Council as part of a Linkage partnership with the Centre for Advanced Assessment and Therapy Services and the University’s foundation research partner, the Victorian Department of Education and Training.

The Reading Comprehension Tests, the Numeracy Tests, and associated materials were developed with the support of the Australian Research Council as part of a Linkage partnership with the Department of Education and Training, Victoria, and Catholic Education Melbourne.

ARC Online Tools has been developed by the Melbourne Graduate School of Education’s Assessment Research Centre and is part of the Graduate School’s educational software suite.

For more information please contact

Hilary Slater, Project Officer  
T +61 3 9035 4425  
E h.slater@unimelb.edu.au

James Demetriou, Business Development Director  
T +61 3 8344 0034  
M +61 402 059 238  
E james.demetriou@unimelb.edu.au
### Specifications: SWANs, Reading Comprehension and Numeracy assessments

| Hardware | Computer, keyboard and mouse  
Pentium processor or equivalent. Minimum 1GHz is recommended.  
Hard disk (HDD), minimum 250 megabytes of free space  
Minimum 256 megabytes available RAM  
Tablets are also able to be used. |
|----------|--------------------------------------------------------------------------------|
| Operating system | A Microsoft Windows NT, 2000, XP or later operating system is recommended.  
(Mac OS is functional but has not been tested). |
| Screen display | 1024 x 768 |
| Internet connectivity | Broadband internet connection (minimum 2mb bandwidth) |
| Suitable browsers | Mozilla Firefox 30 or later, Chrome 31 or later, or Internet Explorer 8 or later. If using Mozilla Firefox or Internet Explorer, the latest version of Flash must be installed (available from http://helpx.adobe.com/flash-player.html).  
If Flash cannot be installed, use Chrome 31 or later.  
Tablet: If using an iPad or other tablet device, a Flash-compatible browser such as Safari or Puffin must be used. |

### Specifications: C21

| Hardware | A computer with keyboard (Mac or PC) or a tablet is needed for each student.  
For PC:  
Memory: 2GB + RAM, 64 MB + VRAM; Mac: 256MB + RAM, 64 MB + VRAM  
Processor: Intel Pentium 4, 2.33 GHz+; Mac: Intel Core Duo 1.33 GHz+  
For Mac:  
Memory: 256MB + RAM and 64 MB + VRAM  
Processor: Intel Core Duo, 1.33 GHz+, minimum 256 megabytes of free space on hard disk  
Tablet: As supplied |
|----------|--------------------------------------------------------------------------------|
| Operating system | For PC: Windows 7  
For Mac: Standard  
Tablet: Android or iOS |
| Screen display | 1024 x 768 or higher |
| Internet connectivity | Broadband internet connection (minimum 1mb bandwidth for less than 20 simultaneous users; 2mb for 20–100 simultaneous users; more for additional users). Network must allow for simultaneous users. Ports 8080 and 8000 must be open on internet gateways. Access to the external website www.arc-assessment.com is required. |
| Suitable browsers | For PCs: Chrome 27+, Mozilla Firefox 24+, Internet Explorer 11+  
For Mac: Chrome 27+ or Mozilla Firefox 24+  
Tablet: If using an iPad or other tablet device, a Flash-compatible browser such as Safari or Puffin must be used. |
| Other requirements | Adobe Flash 10,3 installed (available from http://helpx.adobe.com/flash-player.html)  
Java 1.6 or later installed and enabled (available from https://www.java.com/en/download/) |