



Measuring Up

By Jennifer Roland

Online Technology Assessment Tools Ease
the Teacher's Burden and Help Students Learn

Standards are a reality in all academic disciplines, and they can be hard to measure using conventional methods. Technology skills in particular are hard to assess using multiple-choice, paper-based tests. A new generation of online assessments of student technology skills allows students to prove proficiency by completing tasks in their natural environment, are self-correcting so they save teacher time, and quickly and easily report scores.

Five online assessments correlate to ISTE's National Educational Technology Standards for Students:

- Certiport's Internet and Computing Core Certification (IC³)
- Thomson Learning's Skills Assessment Manager (SAM) Computer Concepts
- Learning.com's TechLiteracy Assessment (TLA)
- NETS Online Technology Assessment (OTA)
- International Computer Driving License (ICDL)

IC³ ■ <http://certiport.com/yourPersonalPath/ic3Certification/>

The IC³ series of three exams not only assesses students' technology skills, it also gives them a certification that Certiport, the company that created IC³, says is a stepping stone to further credentialing, such as their own Microsoft Office Specialist certification or CompTIA's A+. It is suitable for middle school students through adults.

The three exams focus on:

- computing fundamentals, such as using an operating system;
- key applications, such as word processors, spreadsheets, and presentation software; and
- living online, including using the Internet and e-mail.

The exams use multiple-choice, matching, true/false, multiple answer, and simulation questions. The

simulations ask users to save a document, open a Web page, create a folder on the C drive, and so on. The simulations match real-world tools, but because they are part of the self-contained online tool, test takers do not have to have the specific applications installed. User test results are saved online, so students can access their certification at any time.

The IC³ exams have received the NETS Seal of Alignment from ISTE and meet NETS for Students 1–5.

Doug Anderson, corporate communications manager for Certiport, says more than 3,000 K–12 testing centers are in place around the world,



and seven U.S. states are using IC³ as a technology assessment tool or as a high school graduation requirement. One of these is Hawaii, which has entered into a multi-year agreement to provide the test as an elective to its eighth graders. (**Editor's Note:** Read about one Hawaii teacher's experience with this initiative in Case Study: IC³ on p. 15.)

SAM Computer Concepts ■ http://samcentral.course.com/computer_concepts.cfm

This product is part of a larger series of technology training and assessment tools that are suitable for K–12 and higher education. It combines online training and assessment in real-world software tools, assessing students' skills with simulations of computer tasks and multiple-choice questions. The Skills Assessment Manager was the first product of its kind to hit the market when it debuted in 1998, according to Alar Elken, senior vice president and general manager of the trades and technologies division for Thomson Career and Professional Group within Thomson Learning. The tool provides individual and class reporting on the test and task level.

SAM Computer Concepts is made up of 30 learning labs on such topics

as input devices, Windows and common applications, multimedia, file management, and computer maintenance. Elken says the content is tied to that of Thomson's textbooks, which are correlated to the NETS. "Because SAM and our textbooks are such a closely knit system of instruction, it works well for schools where [NETS alignment] is important." He also points out that "SAM comes in many different flavors, which are priced accordingly. Most schools buy the three-year site licenses." However, "schools could also choose the lower-priced options of assessment only or training only," Elken says.

Independent research has shown positive results for SAM, although most research has been conducted



with higher education students rather than K–12. (See Resources on p. 17 for these articles.) SAM products are typically used in higher education, but Elken says more than 400 K–12 schools and districts are currently using SAM products.

OTA ■ <http://www.iste.org/resources/asmt/msiste>

Created through a partnership between Microsoft and ISTE, the NETS Online Technology Assessment has received the Seal of Alignment for NETS for Students 1 and 4, although the specific items are correlated to additional standards.

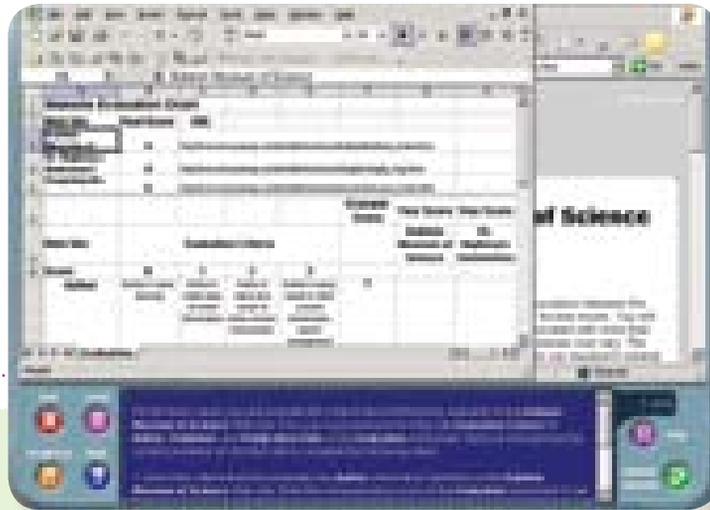
ISTE says the goal of the assessment tool is “to provide students and teachers with easily accessible online assessments that provide immediate, formative feedback.” And this feedback is the greatest help to the teacher, according to Carolyn Stanley, a middle school tech integration specialist in Bethany, Connecticut. (Read more of Stanley’s story in Case Study: NETS Online Assessment Tool below.)

The simulation-based questions ask students to go through the steps of creating documents, entering data

into databases and spreadsheets, and other real-world tasks. Because it is an online tool, users do not need to have the applications on their computer, though they do need to use Microsoft Internet Explorer, as that is the only supported browser.

Teachers sign up for this free tool from the ISTE Web site. They then

receive logins for as many students as they need to take the test. After students complete the tests, they can go redo items as they learn more. Stanley’s students liked this feature because it gave them a sense of accomplishment to improve their performance. One caveat Stanley offers to teachers is to allow plenty of time for students to complete each assessment.



Case Study: NETS Online Assessment Tool

*Carolyn Stanley, Amity Regional District #5 Middle School—
Bethany Campus, Bethany, Connecticut*

As the computer technology integration specialist for a school in a district with a very low level of poverty, Carolyn Stanley is responsible for ensuring that her students have the technology skills required in her district. However, she—like many teachers—struggles to find the time to assess each student as they develop proficiency in each competency.

Stanley creates lessons that embed the required competencies in subject area assignments, for example, formatting a lab report to demonstrate skill in using word processor functions, such as indenting paragraphs, adding page numbers, and using bullets or numbered lists. This mimics the assessment strategy for the district. According to Stanley, all Amity students demonstrate their proficiency with the technology competencies by uploading documents for review “by a trained team of assessors.”

While reading a magazine for technology educators, she came across an ad for the NETS Online Assessment Tool and decided to try it with her students. She was pleased, for the most part. “If I wanted to assess [students] personally,” she says, “I’d have to sit with them one-on-one to watch them do the task.” And, she continues, “the kids actually enjoyed taking the assessments.” However, some of her students had trouble completing an assessment in one class period, and there was no way to save their progress to complete the next day.

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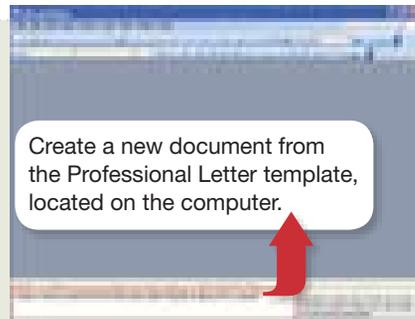
Case Study: IC³

Gayle Loui, Waipahu Intermediate School,
Waipahu, Hawaii

Waipahu Intermediate School is a Title I school in a low-income area of the island of Oahu. According to a January 2004 Price Waterhouse evaluation, 44% of its students are eligible for free or reduced lunch. The surrounding community has poverty levels three times greater than the average for the state of Hawaii and significant gang and drug activity. According to the Hawaii Department of Education's listing of Title I schools, Waipahu Intermediate is in a period of restructuring because of failure to meet adequate yearly progress.

To help students fulfill the NCLB requirement of technology literacy, Hawaii contracted with Certiport to offer the IC³ certification test to its eighth graders. Waipahu Intermediate technology teacher Gayle Loui teaches an elective course on technology and career education, and she says introducing the test is "one of the best things we can do for our kids." She often sees that her students have trouble looking to the future and connecting the dots between what they are learning in her course and their future schooling and employment. "With eighth graders, it's hard to explain what it could mean [for their futures] to have a certification, because they don't think that far." But she believes the foundation she gives them will help them in high school and in their careers when they have to perform some of the tasks she has taught them, such as using a word processor and creating an electronic presentation.

"Most of my kids don't have a computer at home," Loui says, and few of them have had experience using computers in earlier classes. So Loui works to make her students comfortable using computers and teach them the basics to prepare them to take the IC³ test at the end of the quarter. Students take a pretest, and a typical score is 200 out of 1,000. But, after her training and the tutorials on the Certiport Web site, she sees their skills increase greatly. "At least 50% of them, I see them get a score ... of at least 500." This is not a high enough score to pass the test, but Loui is happy to see so many students improve their computer skills so greatly. "If I had more time with them," she concludes, "I think they would actually pass the exam."



Screenshots from the IC³ Assessment tool.

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TLA ■ <http://www.learning.com/tla/>

The TechLiteracy Assessment is the only tool listed here that is suited for assessing younger students' technology skills. Alia Jackson, product marketing manager for the TLA, says "it is a classroom-based assessment that can be completed within a class period with teachers as proctors." The elementary and middle school versions combine simulations of common computer tasks with multiple-choice questions.

Gaston County, North Carolina, is one school district that has used the TLA. Jackson says "they were actually interested in being part of the pilot program [using the beta version of TLA] because the state mandated online testing" of technology skills. Gaston teachers used the TLA to assess their students'

skills and better prepare them for the state-mandated technology test beginning in fall 2005. According to the case study posted on the TLA site, teachers particularly liked the graphical results that allowed them to target skills to teach students. The TLA provides reports at the class, building, and school levels, says Jackson.

The TLA has received the Seal of Alignment for NETS for Students 1 and 4. It has been used with more than 70,000 students in 844 schools, according to Jackson. The cost for the TLA is \$5 per student, which allows multiple test administrations to accommodate pre- and posttesting, says Jackson. The TLA can be used with Learning.com's EasyTech curriculum or stand-alone curriculums.



ICDL ■ <http://www.icdlus.com/>

This worldwide certification program began in the mid-1990s in Europe as the work of a task force aimed at raising IT skills through the European Union. Based on the Finnish Computer Driving License, it was launched as the European Computer Driving License in 1996. As it gained prominence in Europe, international customers began looking for ways to use it in their countries. Now, according to the ICDL-US Web site, more than 15 million tests have been taken, and more than five million people in more than 140 countries are candidates.

ICDL is organized into seven areas:

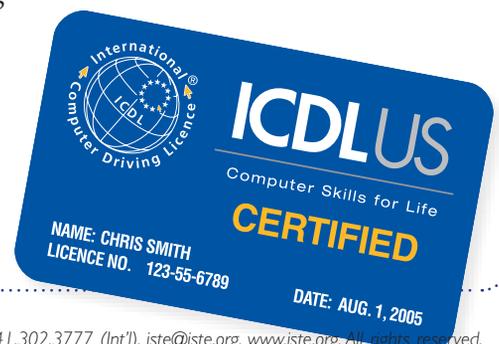
- Basic Concepts of IT
- File Management
- Word Processing
- Spreadsheets

- Database
- Presentations
- Communication and Information

The tests are made up of multiple choice and simulation questions. Those who successfully complete the tests receive certification, either a Level 1 rating, which includes file management, word processing, and Internet and e-mail, or full certification, which encompasses all seven areas. The ICDL has been awarded the NETS Seal of Alignment, meeting NETS for Students 1A and 1B.

ICDL-US offers their own curriculum, or you can purchase solutions from authorized vendors, including Thomson Learning, Advance Learning, and MindLeaders. Students and other interested test-takers can also

take pretests, such as the Computer Skills Placement Test, targeted at K-12 and higher education, and the TechReady Assessment, targeted at corporations and employers. Curriculum vendors also offer their own pretests. According to ICDL-US Vice President for Education Heather Sway, the Computer Skills Placement Test costs \$5 per student, and is administered by the school with results immediately scored and released to both the student and the test administrator.



Conclusion

With the No Child Left Behind requirement that all students who complete eighth grade be computer literate, assessment of student technology skills has become more important than ever. And computer-based assessments of these skills have clear advantages. The most important, according to Waipahu (Hawaii) Intermediate School teacher Gayle Loui, is that it is based on the tools being assessed, so it prepares students for what they will see when they go to high school and to work. "It gives them a taste of reality," Loui says. Stanley also appreciates the automated reporting offered by these types of assessments. Because "the tool is self-correcting," she says, "it saves many man-hours for the teacher." Even her students "thought the online scoring was really neat." Stanley also found the reporting functions important for helping plan future instruction.

Grounding in real-world tasks and classroom-proven assessment items make any of these five assessments valuable tools for your classroom or school. In addition, the ability to use them with only an Internet connection and a Web browser offers flexibility in both teaching and assessment.

Resources

Johnson, D. W., Bartholomew, K. W., & Miller, D. (2006). Improving computer literacy of business management majors: A case study. *Journal of Information Technology Education*, 5. Available: <http://www.jite.org/documents/Vol5/v5p077-094Johnson100.pdf>

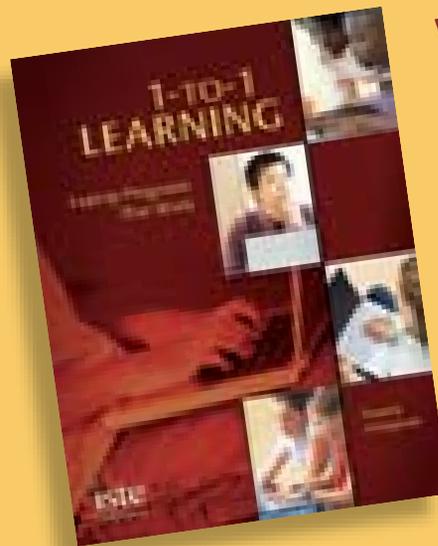
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Wallace, P., & Clariana, R. B. (2005). Perception versus reality: Determining business students' computer literacy skills and need for instruction in information concepts and technology. *Journal of Information Technology Education*, 4. Available: <http://www.jite.org/documents/Vol4/v4p141-151Wallace59.pdf>



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