Assessment: A 21st Century Skills Implementation Guide

Produced by

Partnership for 21st Century Skills

To succeed in college, career and life in the 21st century, students must be supported in mastering both content and skills. This Implementation Guide presents state leaders, policymakers and/or district and school leaders with assessment tactics and examples to assist in statewide 21st century skills initiatives. The Partnership for 21st Century Skills has issued five brief, user-friendly guides, one for each of the P21 support systems:

1. Standards
2. Assessment
3. Professional Development
4. Curriculum & Instruction
5. Learning Environments

It is worth noting that these support systems are not merely ends, but means to a greater goal—to help children develop the cognitive, academic, emotional and physical competencies they need to succeed in 21st century life.

The Partnership recognizes that taking an aligned, comprehensive approach across all five support systems is a significant challenge for all educators. The Implementation Guides have been developed to help support this difficult work. While not every recommendation and example will apply to every state, we hope the resources will help jumpstart efforts to produce more capable, successful 21st century students and citizens.

All 21st century skills initiatives must focus on:

1: Core Academic Subject Mastery

It is important to note that no 21st century skills implementation can be successful without developing core academic subject knowledge and understanding among all students. Students who can think critically and communicate effectively *must build on a base of core academic subject knowledge*. For this reason, core academic subjects are a bedrock component of the P21 Framework for 21st Century Learning. All 21st century skills can and should be taught in the context of core academic subjects.

2: 21st Century Skills Outcomes

In addition to core subject mastery, the Partnership asks every state, district and school the following question: are schools helping students become...

- Critical thinkers?
- Problem solvers?
- Good communicators?
- Good collaborators?
- Information and technology literate?
- Flexible and adaptable?
- Innovative and creative?
- Globally competent?
- Financially literate?

To learn more about the Partnership's state initiatives, the Framework or the Implementation Guides, please visit **www.21stcenturyskills.org**.

Rationale

Our nation faces serious questions in regards to our educational system. The purpose of this document is to provide you with perspective on the key issues to consider—as a policymaker, as state leader, as a district or school administrator—to ensure that you are planning for the future and building strategies that will solidify the success of our students, not only in school and work, but in life.

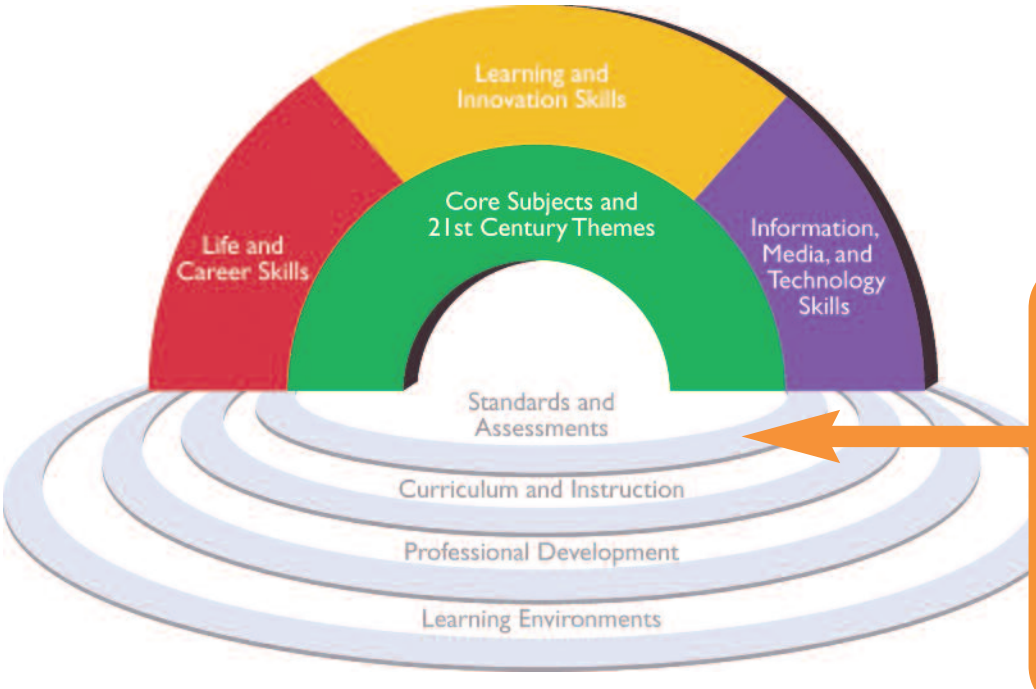
Most K-12 assessments in widespread use today—whether of 21st century skills and content or of traditional core subject areas—measure knowledge of discrete facts, not the ability to apply knowledge in complex situations. High stakes assessments alone do not generate evidence of the skill sets that the business and education communities believe will ensure success in the 21st century.

Vision

Twenty-first century accountability systems—including all forms of measurement—must assess the key dimensions of 21st century learning; they must measure those skills now prized in a complex global environment. There is growing consensus that our education systems should pursue measurement of student outcomes that are:

- Performance-based
- Embedded in curriculum
- Based on a common evidentiary model of cognition and learning

Each of these approaches inherently supports the measurement of 21st century skills.



We must implement assessments that appropriately measure student skills and content knowledge. Such assessments must be meaningful, relevant and supportive of long-term success in the 21st century.

Guiding Recommendations, Promising Directions

The following action steps can be taken to move states, districts and schools towards ensuring that our nation's students will be prepared for success in the 21st century.

Guiding Recommendations	Promising Directions

#1: Build measurement of 21st century skills into large-scale summative assessments.
Assessments should incorporate broader use of performance-based measures that focus on higher-order thinking and measure skills such as:
• Critical thinking
• Problem solving
• Communication skills
• ICT literacy
• Information literacy
• Media literacy
 	
The assessment development process should be collaborative, involving not only assessment experts, but practitioners, education leaders and, where appropriate, outside vendors who provide assessment-related services and products.
	• **Migrate summative assessments from the rote memorization to higher levels of emphasis on higher-order skills like critical thinking.** *Promising Practice: West Virginia is revamping its summative assessments to incorporate higher-order thinking skills.*
	
	• **Explore how information technology can be incorporated into the country's "gold standard" for assessment.** *Promising Practice: Problem Solving in Technology-Rich Environments (TRE) project.* The National Assessment of Educational Progress (NAEP) tested scientific inquiry skills, such as the ability to find information about a given topic, judge what information is relevant, plan and conduct experiments, monitor one's efforts, organize and interpret results, and communicate a coherent interpretation.[1]
	
	• **Engage students in problem-solving tasks that align with core subject standards.** *Promising Practice: Calipers Project (NSF).* With a focus on physical science standards related to forces and motion and life sciences standards related to populations and ecosystems, Calipers engages students in problem-solving tasks, such as determining the proper angle and speed to rescue an injured skier on an icy mountain.[2]
	
	• **Develop standards-based, balanced approaches to assessment that allow students to demonstrate their knowledge through real-world tasks and building portfolios.** *Promising Practice: The Ohio Performance Assessment Pilot Project* is designed to support the initial research, development and pilot testing of a standards-based, balanced assessment approach, allowing students to demonstrate their knowledge and skills through various real-world tasks and activities, the building of portfolios and other exercises. The pilot program uses multiple measures to evaluate students. By monitoring each school's program and receiving feedback from teachers and administrators, Ohio will begin to develop measures that offer a more comprehensive assessment of academic progress.[3]
	
	• **Develop evidentiary based assessments of 21st century skills that leverage performance data for continuously improved learning.**
	  • *Promising Practice: the College and Work Readiness Assessment (CWRA)* measures how students perform on constructed response tasks that require an integrated set of critical thinking, analytic reasoning, problem solving and written communication skills.
	  • *Promising Practice: UCLA's IMMEX* (**I**nteractive **M**ulti-**M**edia **EX**ercises) http://www.immex.ucla.edu/

[1] Tucker, Bill. Beyond the Bubble. Rep. Feb. 2009. Education Sector Reports. http://www.educationsector.org/usr_doc/Beyond_the_Bubble.pdf.
[2] Ibid.
[3] Ohio Performance Assessment Pilot Project." Ohio Department of Education. 30 Dec. 2008. 19 Feb. 2009 http://www.ode.state.oh.us.

Guiding Recommendations	Promising Directions
#2: Globally benchmark summative assessments. We must ensure that U.S. students are being measured for their mastery of 21st century skills in ways that allow comparisons with students from other countries. To compete in a global economy, our students must demonstrate excellence on a global scale, not just a local or national scale.	Although they are not fully inclusive of 21st century skills in all cases, PISA and TIMMS are the best examples of this as of the publication of this document. • **Program for International Student Assessment (PISA)** assesses high school students ICT literacy through establishing current skill and testing through various activities. Performance is assessed based not only on the ability to complete tasks, but also the manner in which tasks are completed. http://www.pisa.oecd.org • **Trends in International Mathematics and Science Study (TIMSS)** provides reliable and timely data on the mathematics and science achievement of U.S. 4th- and 8th-grade students compared to that of students in other countries. http://nces.ed.gov/timss/

#3: Build 21st century skills into formative assessment strategies. States and districts should provide teachers with rubrics and checklists—along with the necessary professional development—to assess student mastery of 21st century skills in ways that impact, inform and improve learning in real time.	• **Use rubrics to evaluate 21st century skills.**
	  • *Promising Practice: Catalina Foothills School District* in Arizona has a series of rubrics used to assess students in real time. Rubrics evaluate 21st century skills such as critical thinking, productivity, and self-direction.
	  • *Promising Practice: Lawrence Township* of Indiana currently uses rubrics to evaluate interactive communication and self-direction.
	  • P*romising Practice: New Technology High School* has implemented rubrics for evaluating peer collaboration and teamwork, work ethic and written communication.
	• **Develop innovative performance-based measurements.** *Promising Practice: The North Carolina Business Committee for Education* and the Center for 21st Century Skills are currently entering the second year of work with the N.C. Science, Mathematics and Technology Center and Dr. John Bransford of the University of Washington to develop and pilot a multimedia online interactive scenario-based biology assessment.

#4: Create an aligned accountability system; all assessment strategies should align with 21st century skills standards, professional development and curriculum and instruction. The goal here is to create an *aligned system* that enhances student learning **and** satisfies accountability requirements; for example, combining large-scale and classroom assessments using curriculum embedded performance tasks allows educators at every level to understand how students are progressing and *why*, and to use this information to enhance student learning in real time.[4] Assessment strategies that measure 21st century skills must be developed in concert with standards, curriculum, instruction and professional development approaches.	**Develop valid, reliable assessments aligned to 21st century skills whose results can be used to inform instruction and ensure accountability.** *Promising Practice: West Virginia* is developing a new assessment program to create valid and reliable assessments that 1) are aligned to the 21st century skill descriptors and state content standards and objectives, 2) inform instruction, 3) promote school improvement and 4) produce results that can be used to calculate school, county and state accountability.

[4] Darling-Hammond, Linda. Powerful Learning: What We Know About Teaching for Understanding. San Francisco: John Wiley & Sons, Inc., 2008. pps 210-2-11.

Guiding Recommendations	Promising Directions
#5: Consider ICT literacy assessment as a starting point. ICT literacy assessment, both formative and summative, provides an effective starting point for many states due to the fact that commercial testing products are already available.	**Assess student abilities to navigate, critically evaluate and make sense of information available through digital technology.** *Promising Practices:* • *ETS iSkills Assessment http://www.ets.org/ictliteracy/* • *[U.K. specific:] Key Stage 3 ICT Literacy Assessment, Great Britain* • *Learning.com's TechLiteracy Assessment* • *PISA ICT Literacy Assessment*
#6: Encourage and fund research and development around 21st century skills assessment. State departments of education, state universities, colleges of education and like institutions should focus efforts on a rigorous agenda to work on and have major core competence in assessment of 21st century skills. They should strive to build fundamental centers of excellence around the assessment of 21st century skills, including new item types and uses of technology.	*Promising Practice: Assessment and Teaching of 21st Century Skills* is an international, collaborative effort sponsored by Cisco, Intel and Microsoft intended to provide: clear, operational definitions of 21st Century skills, solutions to technical psychometric problems that confront those seeking to develop tests of these skills, strategies for delivering assessments using ICT, and classroom-based strategies for helping students develop the skills. http://www.atc21s.org/ *Promising Practice: The Educational Testing Service's Cognitively Based Assessment of*, for and as Learning (CBAL) is a technology-based research project in Portland, Maine. In schools with one-to-one laptop programs, the project focuses on the research and development of a cognitive model for how students read and develop reading skills.

#7: Create open repositories for assessment items and rubrics that help measure 21st century skills. State departments of education should become recognized as centers of excellence for measuring 21st century skills, creating open repositories for sharing assessment items, rubrics and promising practices.	• **Align skill assessment rubrics with business expectations for workplace readiness.** *Promising Practice: New Jersey* is incorporating 21st Century Knowledge and Skills into the protocol established by the NJ Performance Assessment Alliance Project.
	
	• **Collect and review existing assessment tools to formulate state best practices.**
	  • *Promising Practice: Massachusetts* is reviewing rubrics for evaluating high school graduation projects from several other states with the goal of developing their own rubrics based on state standards and frameworks. These will be shared with schools in order to ensure that even these first-stage assessments meet high standards.
	
	  • *Promising Practice:* in 2004 the ECS National Center for Learning and Citizenship started collecting, judging and coding existing assessment instruments for civic education. The Campaign for the Civic Mission of Schools and the Center for Civic Education have contributed resources to support the creation of this draft database. http://www.ecs.org/Qna/splash_new.asp
	
	• **Develop high-quality rubrics for self-direction, critical thinking, information literacy and other skill areas.**
	  • *Promising Practice: Catalina Foothills School District (Tucson, AZ)* and *Lawrence Township ISD (IN)* have developed a number of high-quality rubrics focused on specific 21st century skill areas. These can be located on Route 21 (http://www.21stcenturyskills.org/route21/).

Resources

In addition to the listings above, The Partnership for 21st Century Skills has compiled the following list of resources to provide you with background knowledge, models and promising practices in the various areas of assessment, as well as a list of key expert contacts.

Education Sector
Bill Tucker and Elena Silva
http://www.educationsector.org

Microsoft/Cisco/Intel Assessment of 21st Century Skills Project
Bob Kozma
http://www.atc21s.org

The New Technology Foundation
James Popham, Director of Strategic Planning http://www.newtechfoundation.org

Bob Pearlman, Strategy Consultant for Education Reform http://www.bobpearlman.org/

Route 21: P21's online database that includes district-created rubrics for assessing 21st century skills.
http://www.21stcenturyskills.org/route21/

The School Redesign Network
Ray Pecheone, Director
http://www.srnleads.org/

The University of Washington
John Bransford, Professor of Education http://education.washington.edu

A complete updated list of available references, including reports, state initiatives, white papers and more are available at **www.21stcenturyskills.org.**

Free White Paper on 21st Century Skills Assessment
Download "21st Century Skills Assessment" from the Partnership for 21st Century Skills website at http://www.21stcenturyskills.org/documents/21st_century_skills_assessment.pdf.

About the Partnership for 21st Century Skills

The Partnership for 21st Century Skills has emerged as the leading advocacy organization focused on infusing 21st century skills into education. The organization brings together the business community, education leaders and policymakers to define a powerful vision for 21st century education to ensure every child's success as citizens and workers in the 21st century. The Partnership encourages schools, districts and states to advocate for the infusion of 21st century skills into education and provides tools and resources to help facilitate and drive change.

To learn more about 21st century learning and state actions to date, visit **www.21stcenturyskills.org.**