Partnership for
21st Century Skills

The MILE Guide

MILESTONES FOR IMPROVING LEARNING & EDUCATION

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.

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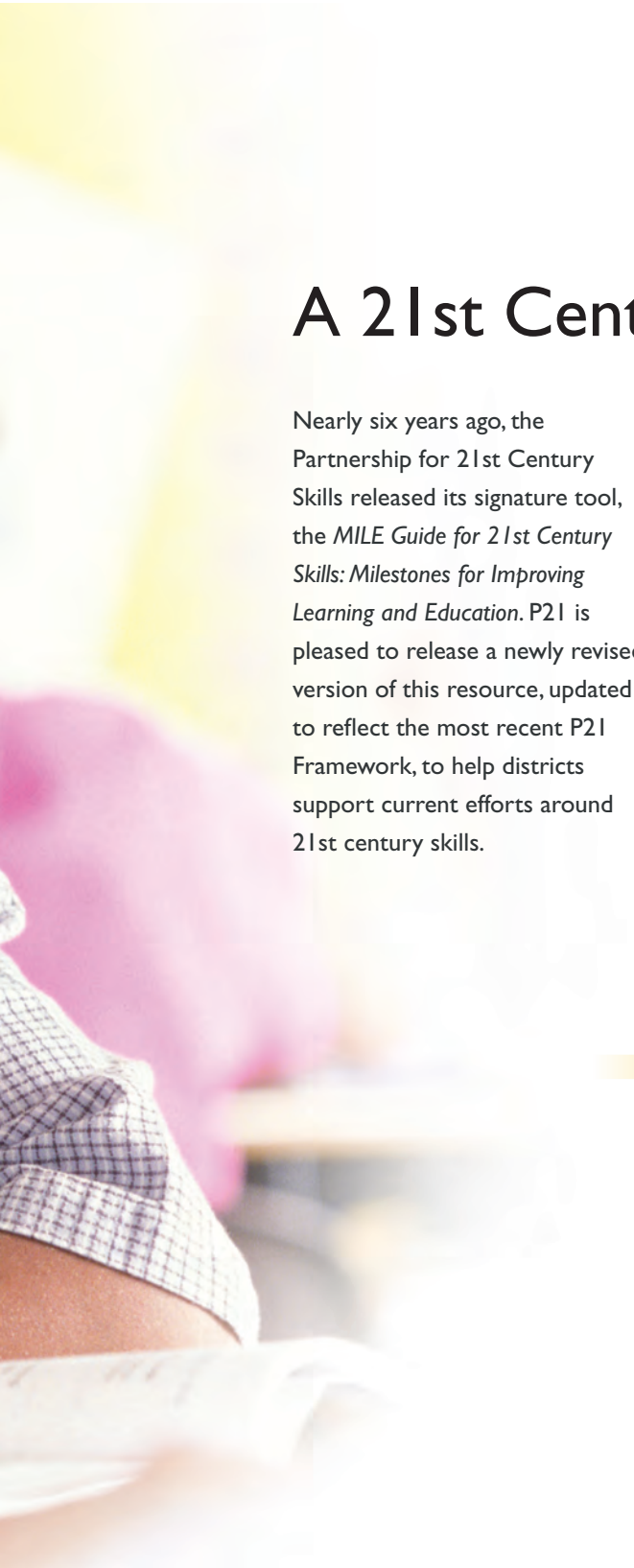


A 21st Century Model of Learning

Nearly six years ago, the Partnership for 21st Century Skills released its signature tool, the *MILE Guide for 21st Century Skills: Milestones for Improving Learning and Education*. P21 is pleased to release a newly revised version of this resource, updated to reflect the most recent P21 Framework, to help districts support current efforts around 21st century skills.

The MILE Guide helps districts determine where they are on the spectrum of 21st century skills integration and then use that information to plan a path for future work that brings 21st century skills in their systems of learning.

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 MILE Guide Self-Assessment tool. All 21st century skills can and should be taught in the context of core academic subjects.

While the vision for 21st century skills integration relies upon student mastery of the core subjects, the MILE Guide also encourages each school district to ask the following questions:

ARE YOUR STUDENTS:

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

What's in the MILE Guide?

THE MILE GUIDE INCLUDES:

The MILE Guide Self-Assessment Tool

A visual mapping and self-assessment tool that allows districts to 1) plot where they are today on the spectrum of 21st century skills integration, and 2) chart a course for more effective integration of 21st century skills into their systems of learning.

Implementation Guiding Recommendations

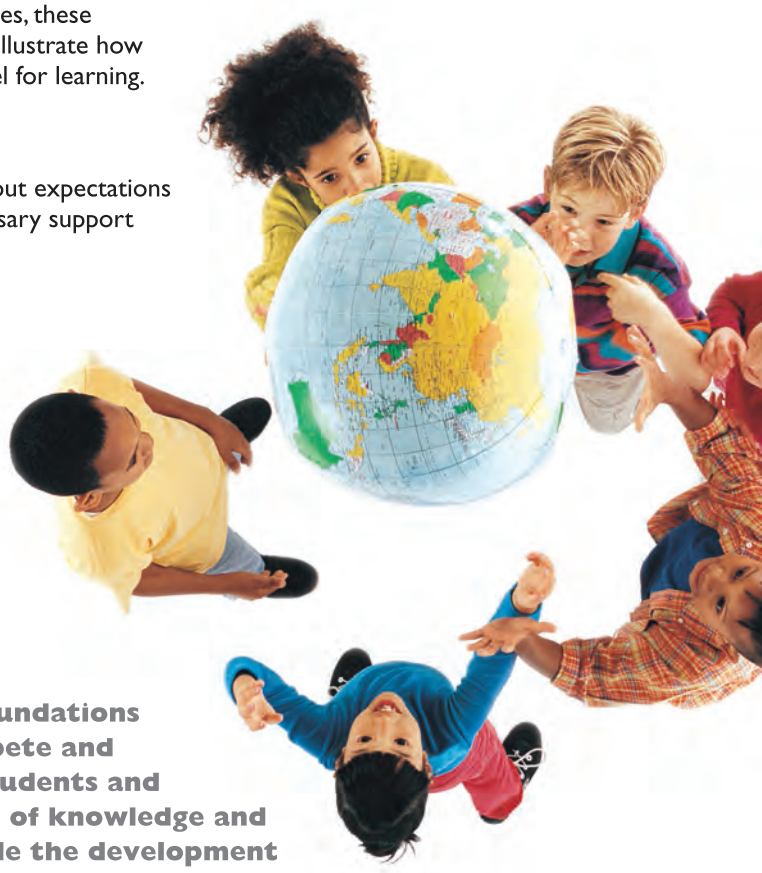
Adapted from the P21 State Implementation Guides, these recommendations include promising practices to illustrate how districts can implement a 21st century skills model for learning.

P21 Framework

The most up-to-date P21 Framework that spells out expectations for 21st century student outcomes and the necessary support systems at the state and local levels.

Online MILE Guide

A streamlined version of the MILE Guide Self-Assessment Tool will be available online at www.21stcenturyskills.org/mileguide/.



"Reading, math and science are the foundations of student achievement. But to compete and win in the global economy, today's students and tomorrow's leaders need another set of knowledge and skills. These 21st century skills include the development of global awareness and the ability to collaborate and communicate and analyze and address problems. And they need to rely on critical thinking and problem solving to create innovative solutions to the issues facing our world. Every child should have the opportunity to acquire and master these skills and our schools play a vital role in making this happen."

MICHAEL DELL, CEO, Dell, Inc.

Why Use the Toolkit?

Every district will benefit from understanding where it sits on the continuum of 21st century skills integration. The MILE Guide Self-Assessment tool helps districts accomplish this essential first step, covering the primary responsibilities and activities within a district.

SUBJECTS COVERED INCLUDE

- **Student Knowledge and Skills**
- **Education Support Systems (e.g., curriculum, assessment, etc.)**
- **Education Leadership**
- **Policymaking**
- **Partnering**
- **Continuous Improvement**

Once a district has completed its self-assessment, education leaders may use the Implementation Recommendations to further guide 21st century skills work. The MILE Guide includes a set of brief, user-friendly recommendations for each of the P21 support systems.

P21 SUPPORT SYSTEMS

- **Standards**
- **Curricula**
- **Instruction**
- **Assessments**
- **Learning Environments**
- **Professional Development**

Benefits of the MILE Guide Self-Assessment Tool

The primary benefit of the MILE Guide Self-Assessment tool is its capacity to help districts assess and guide their approach to developing a model for 21st century learning. Additionally, the MILE Guide Self-Assessment tool can help districts, and to some degree, school leaders:

Generate broad-based support for a 21st century skills initiative.

Education leaders, educators, business leaders, community leaders, policymakers and other stakeholders can use the MILE Guide Self-Assessment tool to establish a compelling vision for 21st century teaching and learning and the stepping stones to achieve this goal.

Set benchmarks and goals.

The MILE Guide Self-Assessment tool allows administrators, teachers and policy leaders to identify current progress on 21st century skills initiatives and formulate next steps.

Apply for grants.

The MILE Guide Self-Assessment tool helps schools identify and prioritize objectives as they seek funding via grants and other sources.

Create continuous improvement rubrics to monitor progress.

Six Steps to Build Momentum

Preparing students for the 21st century calls for collective action on many fronts. To build momentum for this effort, consider these steps:

1 Get Buy-In

Make sure all stakeholders understand and believe in the vision for 21st century learning. Consider establishing an advisory group of education leaders, business and community leaders, parents and students, and engage this group in the vision-setting process. This kind of collaboration will help create the broad support needed to take effective action.

2 Prioritize and Teach Skills through Core Subjects and Themes

The skills framework put forth in the MILE Guide provides a starting point for districts to define and prioritize a 21st century skills implementation. Many districts have customized this framework to better fit the needs of their communities. In all cases, specific skills have been prioritized and they are being taught in the context of core academic subjects. All successful implementations start with a common set of definitions and priorities. It is important to set realistic goals and start with the highest priority needs first.

3 Raise the Bar: Focus on Critical Thinking and Problem Solving

As part of the prioritization process, consider critical thinking and problem solving as "first among equals" in the P21 Framework. Because 21st century rigor requires a higher standard than mere memorization, many districts have begun their implementation work by focusing on these higher order thinking skills. Then, additional skill areas can be added over time.

4 Assess Current Status

After establishing broad support around the vision and priorities, use the MILE Guide Self-Assessment to determine where your district falls on the spectrum of 21st century skills integration. Consider involving stakeholder groups and/or a district 21st century skills advisory group in this process.

5 Develop Implementation Plans

Implementation is extraordinarily difficult work and requires aligning your support systems with 21st century outcomes. Depending on the district's priorities and MILE Guide self-assessment results, clear plans should be created that include 21st century skills action steps for:

- School Leadership
- Professional Development
- Curriculum
- Instructional Practice
- Assessments
- Learning Environments
- Partnerships
- Continuous Improvement

See the Guiding Recommendations section on page 19 for more details around implementation.

6 Collaborate for the Future

The Partnership for 21st Century Skills offers the MILE Guide as a tool to help jumpstart collaborative efforts that help students succeed in work and life. Educators, parents, students, community and business leaders and others can and should work together to help face the challenge of preparing all students for the demands of the 21st century.

P21 Framework Overview

21ST CENTURY STUDENT OUTCOMES

The Partnership for 21st Century Skills has developed a unified, collective vision for 21st century learning that will strengthen American education. The Partnership created the Framework for 21st Century Learning, which describes the knowledge, skills and expertise students must master to succeed in work and life. It presents a vision for 21st century student outcomes (a blending of content knowledge, specific skills, expertise and literacies) and the support systems that are needed to produce these outcomes. **While the graphic represents each element distinctly for descriptive purposes, the Partnership views all the components as fully interconnected in the process of 21st century teaching and learning.**

Core Subjects and 21st Century Themes

Mastery of **core academic subjects** is the base upon which all 21st century learning occurs. Core subjects include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics.

Schools must support students in developing deep mastery of core academic subjects while also integrating **21st century interdisciplinary themes** into these academic subject areas. These themes include:

- **Global Awareness**
- **Financial, Economic, Business and Entrepreneurial Literacy**
- **Civic Literacy**
- **Health Literacy**
- **Environmental Literacy**

Learning and Innovation Skills

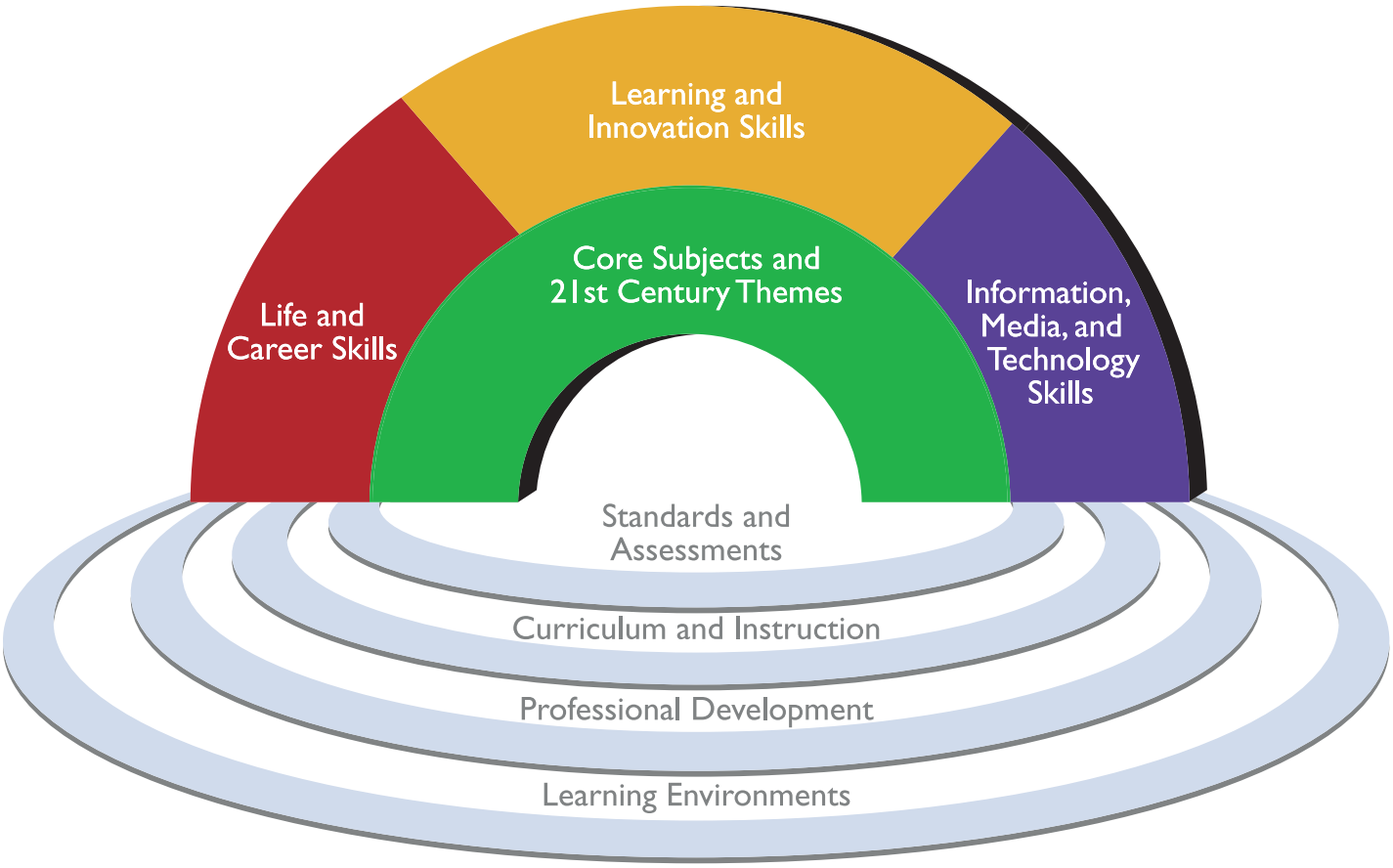
Learning and innovation skills are what separate students who are prepared for increasingly complex life and work environments in the 21st century and those who are not. They include:

- **Creativity and Innovation**
- **Critical Thinking and Problem Solving**
- **Communication and Collaboration**

Information, Media and Technology Skills

People in the 21st century live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as:

- **Information Literacy**
- **Media Literacy**
- **ICT (Information, Communications and Technology) Literacy**



"The Framework for 21st Century Learning is critical to the success of public education in this state and this nation. Embedded within our 21st century learning initiative is the opportunity for our students to be globally competitive with other children on a world-class basis."

STEVEN PAINE,
State Superintendent of Schools,
West Virginia

Life and Career Skills

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as:

- **Flexibility and Adaptability**
- **Initiative and Self-Direction**
- **Social and Cross-Cultural Skills**
- **Productivity and Accountability**
- **Leadership and Responsibility**

21ST CENTURY SUPPORT SYSTEMS

Developing a comprehensive framework for 21st century learning requires more than identifying specific skills, content knowledge, expertise and literacies. An innovative support system must be created to help students master the multi-dimensional abilities required of them in the 21st century. The Partnership has identified five critical support systems that ensure student mastery of 21st century skills:

- **21st Century Standards**
- **Assessments of 21st Century Skills**
- **21st Century Curriculum and Instruction**
- **21st Century Professional Development**
- **21st Century Learning Environments**

The Self-Assessment Tool: Overview

The MILE Guide Self-Assessment tool should not be confused with the P21 Framework, even though elements of the P21 Framework are represented within it. The Framework is a broad description of the essential student outcomes and support systems in a 21st century system of learning. The MILE Guide is a practical, hands-on tool to help districts evaluate their integration of the Framework into day-to-day operations and plans for future improvement.

A BRIEF EXPLANATION OF THE MAJOR COLUMNS IN THE MILE GUIDE

Student Knowledge and Skills. The first column in the self-assessment tool (see list of knowledge and skills in center fold-out) maps exactly to the "rainbow" portion of the Framework, representing 21st century student outcomes: the knowledge, skills and expertise students should master to succeed in work and life in the 21st century. Core academic subject mastery is a fundamental component of any 21st century skills implementation; core academic subjects are presented along with 21st century themes, learning and innovation skills, information, media, and technology skills, and life and career skills.

Education Support Systems. The second column of the MILE Guide Self-Assessment tool maps to the "pools" in the Framework, representing the support systems necessary to ensure student mastery of 21st century skills. Twenty-first century standards, curricula, instruction, assessments, learning environments and professional development must be aligned to produce 21st century outcomes for today's students.

Education Leadership. The MILE Guide Self-Assessment tool asks education leaders and educators to consider the role they play in ensuring 21st century knowledge and skills are mastered among all students.

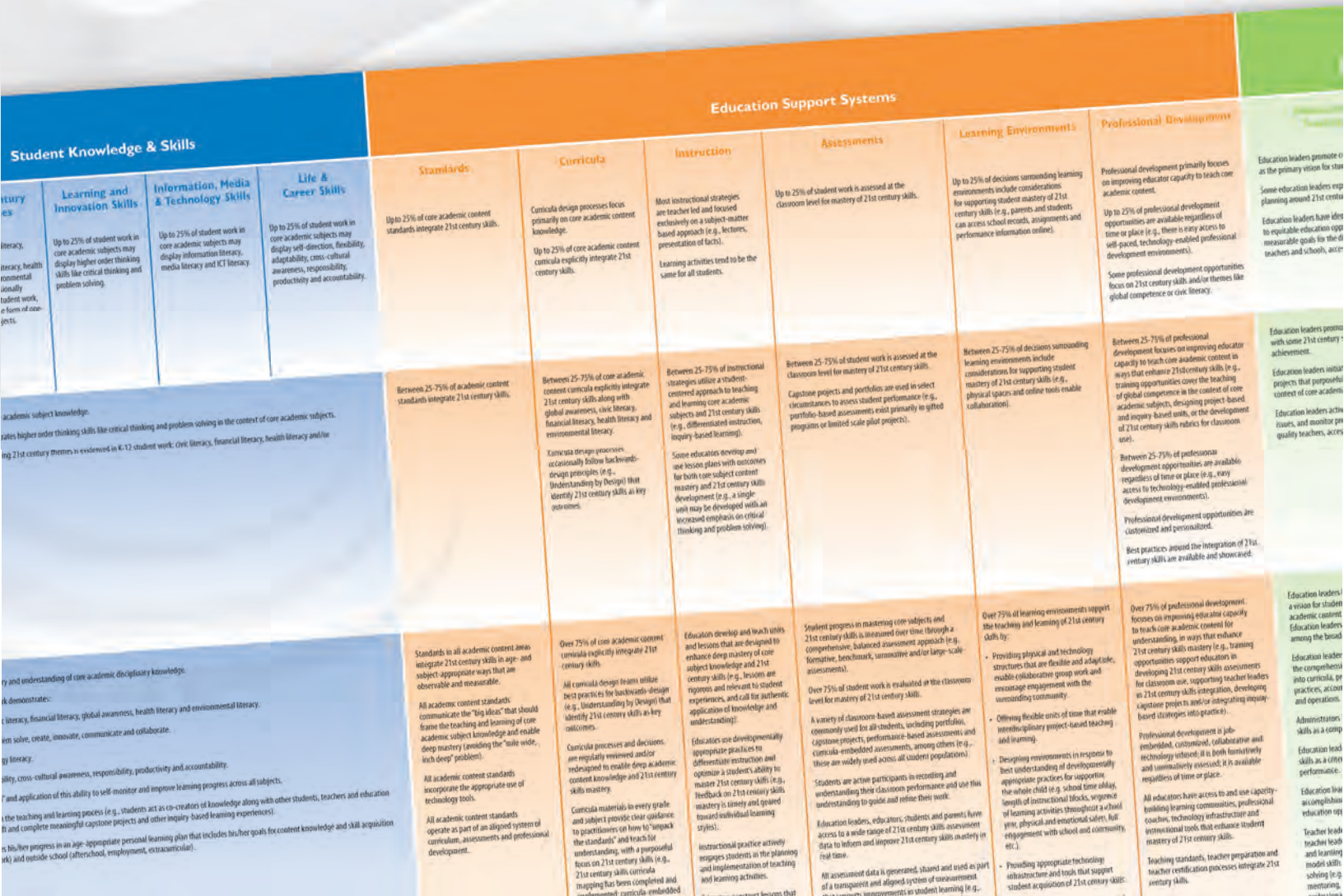
Policymaking. The MILE Guide Self-Assessment tool recognizes the critical work of policymakers in advancing the dialogue about 21st century learning and marshalling the will and resources to promote continuous improvement.

Partnering. At the ground level, district leaders need clear descriptions about the early stage, transitional, and 21st century level indicators of partnerships with parents, higher education, community, business and other entities. This column gives districts a straightforward way to engage these stakeholders around partnering opportunities as part of the district's 21st century skills initiative.

Continuous Improvement/Strategic Planning. Accountability to a 21st century skills initiative is critical. In this final column, the MILE Guide Self-Assessment tool lays out a description of the end goal for 21st century learning and measures for continuous improvement and strategic planning to guide the way.

The MILE Guide

MILESTONES FOR IMPROVING LEARNING & EDUCATION



Using the MILE Guide

Any effort to thoughtfully implement 21st century skills across a district begins with a comprehensive self-assessment. By creating an accurate snapshot of current practice, action steps for ongoing work can be identified and pursued.

RECOMMENDED STEPS FOR USING THE MILE GUIDE

Step 1: Complete the MILE Guide Self-Assessment tool.

The MILE Guide Self-Assessment tool allows any school or district to better understand where it is today and to better plan for its future goals around 21st century learning. To complete the self-assessment:

- Focus on each of the categories across the top of the guide: Student Knowledge & Skills; Education Support Systems; Education Leadership; Policymaking; Partnering; and Continuous Improvement/Strategic Planning, and the categories beneath them.
- Under each selected category, find the level (early stage, transitional or 21st century) that best describes your district's or school's efforts. It is possible that your district or school will be "early" in some cases, and "21st century" in others; this is to be expected.
- After selecting "early," "transitional," or "21st century" for each category, compare your district or school's program components with those in the 21st century level and consider what actions the district might take to move toward that vision.

Step 2: Use the self-assessment results to generate a shared vision for future progress.

Use your findings to start discussions with staff, administrators, school board members, parents, students and community leaders about improving your district or school plans for 21st century learning.

- Encourage key stakeholders to complete the online MILE Guide before participating in district conversations and meetings around 21st century skills (this short interactive version of the MILE Guide can be found at www.21stcenturyskills.org/MILEGuide/).
- Engage in exercises to create a shared vision informed by the MILE Guide Self-Assessment tool findings. These exercises might include review and prioritization of the P21 Framework definitions, creation of 21st century skills study groups, or convening additional MILE Guide workshops with business and community leaders.
- Use this shared vision to determine which elements are the highest priorities to become part of your district's 21st century skills action plan.

Step 3: Develop a comprehensive, aligned plan of action.

- Focus on aligning all major areas of the self-assessment tool. Student knowledge and skills outcomes must be supported and aligned across all areas of district activity, including curricula and assessment, learning environments, professional development, leadership, policymaking and partnering, among others. It is critical that the MILE Guide self-assessment results encourage the kind of comprehensive planning and alignment that yields credible improvements in student learning.
- Once the areas of action have been identified and prioritized, use the Implementation Guiding Recommendations to guide you in developing specific action steps. For example, if, after completing the MILE Guide assessment, a district discovers that it is in the early stage of curricula integration, one recommendation that may help frame next steps is found in this document on page 23: "Unpack the Standards to Articulate Essential Concepts and Skills." A district might undertake the work of describing the essential understandings and 21st century skills contained within the standards and ensure all curricula materials (curriculum guides, model units) clearly identify the big ideas and 21st century skills as critical learning goals.

Step 4: Implement your plan!

- Determine roles, responsibilities and timelines across all major areas of activity. Consider appointing a single leader to coordinate 21st century knowledge and skills activities across the district.
- Involve community leaders, businesses and other stakeholder groups wherever possible.

Step 5: Institute a cyclical review of the MILE Guide Self-Assessment process to track progress and revise your strategic plan as needed.

- Conducting the MILE Guide Self-Assessment is not a one-time event. It should be revisited and re-administered periodically so that district stakeholders have an accurate, up-to-date assessment of progress, can make informed decisions that align with the common goal for 21st century learning for all students, and continue to build momentum, expanding their sphere of influence to support a new model for learning.

Step 6: Communicate Progress.

- Communicate progress regularly to all participants and stakeholders: parents, community leaders, business leaders, key partners and policymakers.

Student Knowledge & Skills

Early Stage

Core Subjects	21st Century Themes	Learning and Innovation Skills	Information, Media & Technology Skills	Life & Career Skills	Standards
Student work primarily demonstrates rote factual knowledge in core academic subjects.	Themes like civic literacy, financial literacy, entrepreneurial literacy, health literacy and environmental literacy are occasionally represented in student work, most often in the form of one-time special projects.	Up to 25% of student work in core academic subjects may display higher order thinking skills like critical thinking and problem solving.	Up to 25% of student work in core academic subjects may display information literacy, media literacy and ICT literacy.	Up to 25% of student work in core academic subjects may display self-direction, flexibility, adaptability, cross-cultural awareness, responsibility, productivity and accountability.	Up to 25% of core academic content standards integrate 21st century skills.

Transitional Stage

Student work demonstrates mastery of core academic subject knowledge.

Between 25-75% of student work demonstrates higher order thinking skills like critical thinking and problem solving in the context of core academic subjects.

Understanding of at least one of the following 21st century themes is evidenced in K-12 student work: civic literacy, financial literacy, health literacy and/or environmental literacy.

Between 25-75% of academic content standards integrate 21st century skills.

21st Century

All student work demonstrates mastery and understanding of core academic disciplinary knowledge.

Additionally, over 75% of student work demonstrates:

- Mastery and understanding of civic literacy, financial literacy, global awareness, health literacy and environmental literacy.
- The ability to think critically, problem solve, create, innovate, communicate and collaborate.
- Information, media and technology literacy.
- Self-direction, flexibility, adaptability, cross-cultural awareness, responsibility, productivity and accountability.
- The ability to "learn how to learn" and application of this ability to self-monitor and improve learning progress across all subjects.

Students are active collaborators in the teaching and learning process (e.g., students act as co-creators of knowledge along with other students, teachers and education leaders; students help identify, craft and complete meaningful capstone projects and other inquiry-based learning experiences).

Every student creates and manages his/her progress in an age-appropriate personal learning plan that includes his/her goals for content knowledge and skill acquisition inside school (classes and class work) and outside school (afterschool, employment, extracurricular).

Standards in all academic content areas integrate 21st century skills in age- and subject-appropriate ways that are observable and measurable.

All academic content standards communicate the "big ideas" that should frame the teaching and learning of core academic subject knowledge and enable deep mastery (avoiding the "mile wide, inch deep" problem).

All academic content standards incorporate the appropriate use of technology tools.

All academic content standards operate as part of an aligned system of curriculum, assessments and professional development.

Education Support Systems

Curricula	Instruction	Assessments	Learning Environments	Professional Development
Curricula design processes focus primarily on core academic content knowledge. Up to 25% of core academic content curricula explicitly integrate 21st century skills.	Most instructional strategies are teacher led and focused exclusively on a subject-matter based approach (e.g., lectures, presentation of facts). Learning activities tend to be the same for all students.	Up to 25% of student work is assessed at the classroom level for mastery of 21st century skills.	Up to 25% of decisions surrounding learning environments include considerations for supporting student mastery of 21st century skills (e.g., parents and students can access school records, assignments and performance information online).	Professional development primarily focuses on improving educator capacity to teach core academic content. Up to 25% of professional development opportunities are available regardless of time or place (e.g., there is easy access to self-paced, technology-enabled professional development environments). Some professional development opportunities focus on 21st century skills and/or themes like global competence or civic literacy.
Between 25-75% of core academic content curricula explicitly integrate 21st century skills along with global awareness, civic literacy, financial literacy, health literacy and environmental literacy. Curricula design processes occasionally follow backwards-design principles (e.g., Understanding by Design) that identify 21st century skills as key outcomes.	Between 25-75% of instructional strategies utilize a student-centered approach to teaching and learning core academic subjects and 21st century skills (e.g., differentiated instruction, inquiry-based learning). Some educators develop and use lesson plans with outcomes for both core subject content mastery and 21st century skills development (e.g., a single unit may be developed with an increased emphasis on critical thinking and problem solving).	Between 25-75% of student work is assessed at the classroom level for mastery of 21st century skills. Capstone projects and portfolios are used in select circumstances to assess student performance (e.g., portfolio-based assessments exist primarily in gifted programs or limited scale pilot projects).	Between 25-75% of decisions surrounding learning environments include considerations for supporting student mastery of 21st century skills (e.g., physical spaces and online tools enable collaboration).	Between 25-75% of professional development focuses on improving educator capacity to teach core academic content in ways that enhance 21st century skills (e.g., training opportunities cover the teaching of global competence in the context of core academic subjects, designing project-based and inquiry-based units, or the development of 21st century skills rubrics for classroom use). Between 25-75% of professional development opportunities are available regardless of time or place (e.g., easy access to technology-enabled professional development environments). Professional development opportunities are customized and personalized. Best practices around the integration of 21st century skills are available and showcased.
Over 75% of core academic content curricula explicitly integrate 21st century skills. All curricula design teams utilize best practices for backwards-design (e.g., Understanding by Design) that identify 21st century skills as key outcomes. Curricula processes and decisions are regularly reviewed and/or redesigned to enable deep academic content knowledge and 21st century skills mastery. Curricula materials in every grade and subject provide clear guidance to practitioners on how to "unpack the standards" and teach for understanding, with a purposeful focus on 21st century skills (e.g., 21st century skills curricula mapping has been completed and implemented; curricula-embedded 21st century skills assessments are common.)	Educators develop and teach units and lessons that are designed to enhance deep mastery of core subject knowledge and 21st century skills (e.g., lessons are rigorous and relevant to student experiences, and call for authentic application of knowledge and understanding). Educators use developmentally appropriate practices to differentiate instruction and optimize a student's ability to master 21st century skills (e.g., feedback on 21st century skills mastery is timely and geared toward individual learning styles). Instructional practice actively engages students in the planning and implementation of teaching and learning activities. Educators construct lessons that enable a student's progression from teacher-led to self-directed learning.	Student progress in mastering core subjects and 21st century skills is measured over time through a comprehensive, balanced assessment approach (e.g., formative, benchmark, summative and/or large-scale assessments). Over 75% of student work is evaluated at the classroom level for mastery of 21st century skills. A variety of classroom-based assessment strategies are commonly used for all students, including portfolios, capstone projects, performance-based assessments and curricula-embedded assessments, among others (e.g., these are widely used across all student populations). Students are active participants in recording and understanding their classroom performance and use this understanding to guide and refine their work. Education leaders, educators, students and parents have access to a wide range of 21st century skills assessment data to inform and improve 21st century skills mastery in real time. All assessment data is generated, shared and used as part of a transparent and aligned system of measurement that supports improvements in student learning (e.g., classroom, district, state and national data can be combined and/or disaggregated as needed to inform improvement at all levels of the teaching and learning process: individual students, student sub-populations, programs, professional development, curriculum, etc.).	Over 75% of learning environments support the teaching and learning of 21st century skills by: • Providing physical and technology structures that are flexible and adaptable, enable collaborative group work and encourage engagement with the surrounding community. • Offering flexible units of time that enable interdisciplinary project-based teaching and learning. • Designing environments in response to best understanding of developmentally appropriate practices for supporting the whole child (e.g., school time of day, length of instructional blocks, sequence of learning activities throughout a school year, physical and emotional safety, full engagement with school and community, etc.). • Providing appropriate technology infrastructure and tools that support student acquisition of 21st century skills. • Providing every student with a personal learning plan that articulates the school's role in supporting student mastery of core academic content and 21st century skills.	Over 75% of professional development focuses on improving educator capacity to teach core academic content for understanding, in ways that enhance 21st century skills mastery (e.g., training opportunities support educators in developing 21st century skills assessments for classroom use, supporting teacher leaders in 21st century skills integration, developing capstone projects and/or integrating inquiry-based strategies into practice). Professional development is job-embedded, customized, collaborative and technology-infused; it is both formatively and summatively assessed; it is available regardless of time or place. All educators have access to and use capacity-building learning communities, professional coaches, technology infrastructure and instructional tools that enhance student mastery of 21st century skills. Teaching standards, teacher preparation and teacher certification processes integrate 21st century skills.

Education Leadership

Administrators and Teacher Leaders

Education leaders promote core academic content mastery as the primary vision for student achievement.

Some education leaders express support for strategic planning around 21st century skills.

Education leaders have identified high priority issues related to equitable education opportunity and have established measurable goals for the district (e.g., access to quality teachers and schools, access to technology, IDEA, etc.).

Education leaders promote deep content mastery along with some 21st century skills as the vision for student achievement.

Education leaders initiate occasional, small-scale pilot projects that purposefully focus on 21st century skills in the context of core academic subjects.

Education leaders actively address high-priority equity issues and monitor progress around them (e.g., access to quality teachers, access to technology, IDEA, etc.).

Education leaders have developed consensus around a vision for student learning that includes both core academic content mastery and 21st century skills. Education leaders communicate this vision regularly among the broader community.

Education leaders promote, facilitate, model and support the comprehensive integration of 21st century skills into curricula, professional development, instructional practices, accountability systems, resources, management and operations.

Administrators include educator mastery of 21st century skills as a component of performance evaluations.

Education leaders include student mastery of 21st century skills as a criterion for evaluating school and district performance.

Education leaders hold themselves accountable for accomplishing stated yearly goals regarding equitable education opportunity.

Teacher leaders are well-integrated in every school; these teacher leaders model and foster integration of teaching and learning of 21st century skills so that all educators can model skills like creativity, critical thinking and problem solving (e.g., they facilitate 21st century skills-related mentoring, peer support, induction of new practitioners, professional learning communities, professional development, etc.).

Educators

Educators act primarily as providers of core academic subject content (e.g., facts are shared in a one-way, teacher-to-student transmission).

Instructional strategies are focused on subject matter mastery.

Technology use is occasionally integrated into lessons.

Between 25-75% of educators employ instructional strategies that purposefully develop mastery of 21st century skills in the context of core subjects.

Educators facilitate student acquisition of core subject knowledge and applied 21st century skills using a range of methods including direct instruction, collaborative projects and technology-infused assignments.

Over 75% of educators employ an appropriate and diverse range of instructional strategies from direct instruction to project-based learning that purposefully develop deep understanding of core subjects and student mastery of 21st century skills.

All educators have access to and independently pursue 21st century skills-related learning communities and/or professional development opportunities.

All educators use learning communities to collaboratively and systematically review student work and plan for instruction related to student mastery of 21st century skills.

Policymaking

Policymakers

Education policy making focuses primarily on policies that support student content mastery.

Up to 25% of standards, assessments, professional development and curricula are aligned and include 21st century skills.

Licensure of educators and accreditation of teacher education institutions focus on pedagogy and mastery of core subjects.

Education policy making integrates some 21st century skills (e.g., critical thinking, problem solving, technology literacy, global awareness and/or civic literacy) into policies that support student content mastery.

Between 25-75% of standards, assessments, professional development and curricula are aligned and include 21st century skills.

Licensure of educators and accreditation of teacher education institutions incentivize the integration of some 21st century skills, such as technology literacy, into programs.

Consistently set policy that supports student mastery of 21st century skills.

Ensure appropriate funding to support and monitor progress on the comprehensive integration of 21st century skills across the education system.

Create tangible incentives for educators to lead, teach and assess 21st century skills.

Act as advocates at the local, state and federal levels for an evidence-based accountability system that strengthens student mastery of 21st century skills.

Ensure that all standards, assessments, professional development and curricula are aligned, and include 21st century skills.

Ensure that state policies are aligned with districts and schools to ensure 21st century skills integration and implementation.

Develop criterion for licensure of educators and accreditation of teacher education institutions that includes the comprehensive integration of 21st century skills.

Invest in assessments and professional development that cover student mastery of 21st century skills.

Incentivize/utilize educational cooperatives (education service agencies) as major resource centers for professional development of 21st century skills.

Parents

Up to 25% of parents have 24/7 online access to student performance information.

Parents participate annually in school-based planning discussions.

Between 25-75% of parents have 24/7 online access to student performance information.

Parents occasionally partner with the school and local community organizations to support student acquisition of 21st century skills (e.g., parents help identify and support extracurricular, afterschool and/or other opportunities that advance student mastery of 21st century skills).

Over 75% of parents have 24/7 online access to student performance information, including student progress on mastery of 21st century skills.

Parents regularly partner with the school and local community organizations to support student acquisition of 21st century skills (e.g., parents serve on 21st century skills-related school committees; parent organizations initiate and support school activities that focus on 21st century skills).

Parents understand the importance and relevance of the 21st century skills teaching and learning vision and act as advocates in the larger community (i.e., beyond the immediate school) to build support for the integration of 21st century skills in formal and informal learning environments (e.g., in school, at home, and through afterschool programs, internships, jobs, etc.).

Partnering				Continuous Improvement/ Strategic Planning
Business	**Community**	**Higher Education**	**Vendors**	**States, Districts, Schools**
Businesses occasionally collaborate with K-12 partners to address student workforce preparedness and college readiness issues. Businesses occasionally support K-12 schools with technology programs and/or infrastructure.	Community leaders have expressed interest in establishing a regional education and workforce strategy for improving mastery of 21st century skills. Some K-12 leaders, community organizations, public agencies, libraries and museums occasionally share resources and facilities to benefit the larger community. Some educational associations and professional organizations have expressed interest in developing collaborative community work around 21st century skills.	Up to 25% of teacher education programs have integrated 21st century skills teaching and learning into the graduation requirements for all preservice students. K-12 and higher education leaders occasionally work together to enhance student readiness for college, but rarely emphasize 21st century skills.	Vendors offer content, tools and resources that support student mastery of core subjects. Vendors provide technology-enabled resources, assessments and curriculum.	Some districts and schools have developed consensus around a vision and measurable goals for student mastery of 21st century learning.
Business leaders participate in an annual discussion with K-12 leaders to identify key priorities in preparing students for the 21st century workforce and higher education. Businesses occasionally support K-12 schools and students by providing relevant internships and/or mentors that enhance student mastery of 21st century skills.	Community leaders have initiated and completed a 21st century skills community scan, identified the highest priority skills and established partnerships among community groups to begin addressing these needs. Some community programs purposefully focus on 21st century skills mastery among citizens. Community leaders regularly partner with K-12 leaders to initiate innovative projects that address 21st century skills in the community. K-12 leaders, community organizations, public agencies, libraries and museums regularly share resources and facilities to benefit the larger community. Educational coalitions, associations and/or professional organizations have initiated a regional or statewide project around 21st century skills.	Between 25-75% of teacher education programs have integrated 21st century skills teaching and learning into the graduation requirements for all preservice students. K-12 and higher education leaders often work together to enhance student readiness for college, including some 21st century skills. Research is occasionally conducted in colleges of education around effective teaching, learning and assessment methods regarding 21st century skills mastery.	Vendors offer content, tools and resources that support student mastery of core subjects along with some 21st century skills. Vendors provide regular opportunities for K-12 leaders to provide input on 21st century skills content, tools and resources. Most vendor materials are offered in digital as well as traditional formats.	The district's strategic planning documents reflect 21st century skills as key imperatives. Districts and schools track measurable goals related to student mastery of 21st century skills. States, districts and schools document and share examples of administrator, educator and student use and application of 21st century skills teaching and learning. Current district and school policies, procedures, operations and practices have been inventoried for their effectiveness at supporting 21st century learning.
Business leaders regularly engage in meaningful dialogue with education leaders, in both formal (strategic planning, vision setting) and informal (volunteering) settings around the skills needed for workplace and higher education success. Business leaders participate with schools in an annual review of K-12 and community-based educational opportunities that enhance student mastery of 21st century skills. Business leaders provide every high school student with well-mentored internships and other opportunities that strengthen 21st century skills. Business partners with schools to create innovative programs that foster 21st century skills (e.g., creating a student-run credit union).	Community leaders have developed consensus around a 21st century skills vision for the "learning systems" available to all citizens and communicate this vision across a number of available formats (traditional media, social media, community gatherings, etc.). Non-K-12 learning organizations consult annually with K-12 leaders, community organizations, public institutions (e.g. museums, libraries), businesses and others to continually refine the community's and/or region's approach to strengthening 21st century skills, not just for students but for all citizens. Community-based learning partners (museums, libraries, afterschool programs, informal learning organizations, etc.) publish an annual listing of programs specifically geared for students that are aligned with the K-12 approach to 21st century skills. Community-based approaches to 21st century skills are part of an aligned, comprehensive economic and workforce development strategy that supports the entire region. Educational coalitions, associations and/or professional organizations are active leaders and collaborators around local and regional 21st century skills-based projects.	Over 75% of teacher education programs ensure that all candidates participate in field experiences that require the integration and use of 21st century skills teaching strategies. Education leadership programs emphasize faculty development of 21st century skills. Also, education leaders learn and practice strategies for fostering continuous learning of practitioners, creating environments in which educators collaborate and develop lessons that enhance students' acquisition of 21st century skills. Faculty members possess and utilize a strong, current base of professional and pedagogical knowledge and skills including 21st century skills, themes and core subject knowledge. Faculty members conduct active research to determine successful pedagogies and other practices that enhance the teaching and learning of 21st century skills. Results are shared with policymakers and educators across the K-12 learning system. Student mastery of 21st century skills is articulated as a requirement for matriculation and college readiness.	Vendors create content, tools and resources that comprehensively integrate student mastery of core subjects and 21st century skills in ways that are observable and measurable. Vendors invest in evidence-based, technology-enabled resources, assessments and curriculum that deepen content understanding and 21st century skills mastery among students. Vendors invest in research and development that leads to improved teaching and assessing of 21st century skills. Vendors develop robust human capital and professional development tools that support 21st century skills mastery among education leaders, practitioners and other educators.	States, districts and schools are implementing a vision for student mastery of 21st century skills (e.g., the district's strategic planning and budget reflect 21st century skills as key imperatives). States, districts and schools monitor and track their success over time at incorporating 21st century skills across the system. District leaders honor and publicize 21st century skills best practices in schools. Districts rely on a balanced mix of assessment data along with other indicators to drive continuous school and district improvement around 21st century skills. State, district and school policies support district-based continuous improvement efforts around 21st century skills.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Implementation Guiding Recommendations

A district's first step in using the MILE Guide is to complete the MILE Guide Self-Assessment tool. This provides the district with a snapshot of where they sit on the continuum of 21st century skills integration and some direction for developing an action plan. After completing the self-assessment, districts are encouraged to consider the enclosed Implementation Guiding Recommendations. These recommendations can help local districts move from self-assessment to concrete action. Here, district leaders will see how other districts have approached their action plans and get a glimpse of recommendations and promising practices in each of the Education Support Systems sections of the MILE Guide Self-Assessment tool (i.e., Standards, Curriculum, Instruction, Assessment, Learning Environments and Professional Development).

Assessment: Guiding Recommendations, Promising Practices

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**

While investing in the development of gold-standard assessments for 21st century skills is outside the realm of most school districts, they still can and should integrate 21st century skills into their formative assessment strategies, seek tighter alignment across all levels of the system from classroom to school to district to state, consider the value add of ICT literacy assessments as a starting point, and create open repositories for assessment items.

1 **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.
- *Promising 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 North Carolina 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.

2 **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.[1] 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.

3 **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/
- Key Stage 3 ICT Literacy Assessment, Great Britain
- Learning.com's TechLiteracy Assessment
- PISA ICT Literacy Assessment

4 **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 the state's 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, Arizona) and Lawrence Township ISD (Indiana) have developed a number of high-quality rubrics focused on specific 21st century skill areas. These can be found on Route 21 (http://www.21stcenturyskills.org/route21/).

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

Professional Development: Guiding Recommendations, Promising Practices

Districts play a crucial role in helping teachers and other educators make meaning of 21st century skills integration through professional development opportunities. All professional development efforts should exist as part of an aligned system of teaching and learning that includes 21st century skills standards, curriculum, instruction and assessments.

1 **Develop intensive teacher professional development programs that focus intentionally on 21st century skills instruction.** Consider developing PD sessions that focus on enhancing authentic 21st century skills outcomes in the teaching of core subjects and interdisciplinary themes, such as training that helps educators integrate critical thinking and communication in the context of mathematics lessons and instruction, or creativity and ICT literacy in the context of language arts lessons and instruction.

North Carolina, New Literacies Collaborative at the Friday Institute is a multidisciplinary group of researchers and practitioners who promote research and online professional development for educators in new literacies.
http://www.fi.ncsu.edu/project/new-literacies-collaborative/

Iowa's Authentic Intellectual Work (AIW) is a statewide initiative to improve teaching and learning through ongoing professional development. It highlights ways teachers can teach for deep understanding of subject matter and enhance problem solving, critical thinking and other 21st century skills through a balance of direct instruction and project-oriented teaching methods.

2 **Develop professional learning communities around specific 21st century skills.** Invest in creating professional online learning communities to support teachers, administrators and state department of education employees in the creation of online support groups for 21st century skills.

IntelTeach uses a "train-the-trainer" model to provide both face-to-face and online instruction to help teachers around the world integrate technology into their classrooms. Teachers create lesson plans that can be immediately implemented and that meet local and national education goals and standards. The program also offers an interactive forum focused on leadership in promoting, supporting and implementing effective technology integration in schools.
http://www.intel.com/education/teach/index.htm

In JeffCo Public Schools in Colorado, community engagement technology is being used to bridge both the time and space gap for district-wide professional learning communities. Using Blackboard Learn™, teachers have fast access to content and peer groups most relevant to their role.
www.blackboard.com/k12

3 **Invest in ICT (information, communication and technologies) excellence.** Develop a PD program focused on ensuring school and district technology directors are fully trained in the area of ICT literacy.

The Friday Institute of North Carolina State University is made up of close to 60 corporate and government organizations and business incubators working in partnership with faculty and students in a highly innovative environment to "to advance education through innovation in teaching, learning and leadership." http://www.fi.ncsu.edu/

4 **Build capacity.** Work with administrators and teacher leaders to create an environment of differentiated professional learning, risk taking and collaborative relationships.

Teacher Leader Capacity Building Model: Southfield Public Schools, Michigan and Cypress Fairbanks ISD in Houston, Texas are implementing capacity building professional development using the teacher leader model at selected schools in their districts. Teacher leaders and school-based coaches are working with ASCD faculty members to develop expertise in specific instructional practices by participating in job-embedded professional development experiences. Teacher leaders are leading the professional learning of their colleagues and have their classrooms serve as demonstration classrooms. District leaders have played an integral role in assuring that there is effective professional development planning in place before and during the implementation, including gathering evidence of changes in teacher practice. http://www.ascd.org

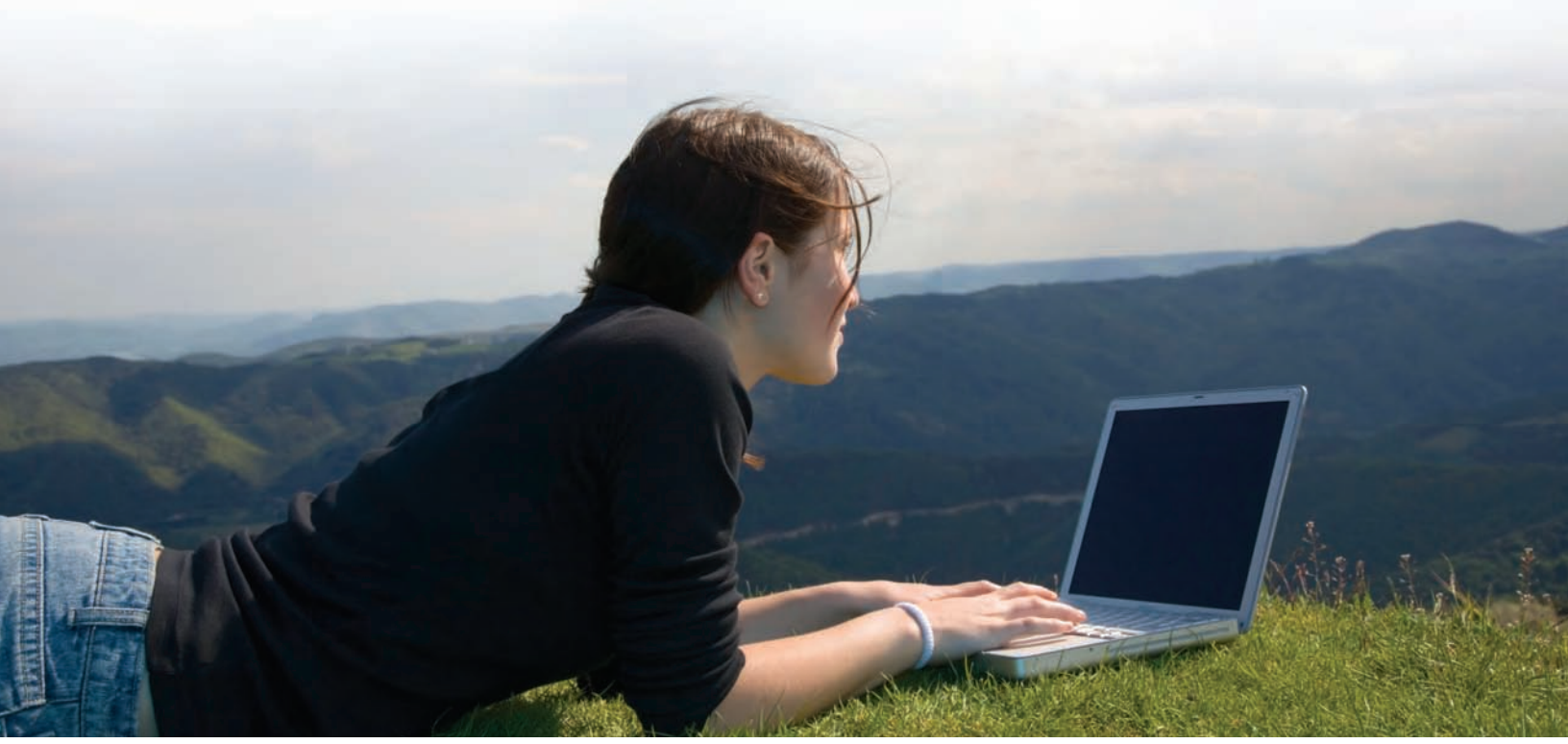
5 **Develop district leadership teams to infuse 21st century skills throughout the school district.** Work with district superintendent to develop institutes for school leadership teams around 21st century skills. Teams should be trained and empowered to develop district-level 21st century skills strategies. Such institutes should also be places where teachers can be trained as leaders able to pass on their expertise to other teachers within their district.

Catalina Foothills School District in Tucson, Arizona has an Assistant Superintendent for 21st Century Learning who works with a leadership team to implement their program across the district. http://www.cfsd16.org/public/_century/centMain.aspx

6 **Train administrators around how to lead 21st century skills initiatives.**

North Carolina's Middle School Literacy Coaches are specially selected teachers charged with coaching other teachers in the delivery of 21st century instruction and embedding best practices into the school culture.

The West Virginia Institute for 21st Century Leadership prepares the state's principals to develop and lead 21st century schools by providing in-depth professional development and support for school leaders, and expands the leadership knowledge and skills of principals to the application level of 21st century leadership.



Curricula & Instruction: Guiding Recommendations, Promising Practices

The following action steps can be taken to move districts toward more effective integration of 21st century skills in curricula and instruction.

1 **Develop curricula for understanding.** Ensure that curricula are designed to produce deep understanding and authentic application of 21st century skills. This by definition will enable the development of 21st century skills; curricula should include models for appropriate learning activities that accomplish 21st century skills outcomes.

New Technology High School: Students learn in an innovative and professional environment fostered by the use of advanced learning methods and technology. Both staff and students understand the commitment necessary to implement a rigorous and relevant curriculum, one in which technology standards and skill development are embedded. http://www.newtechhigh.org/

RxeSEARCH: An Educational Journey is a STEM related curriculum used in over 40 high schools in New Jersey, New York, Connecticut, Massachusetts, Pennsylvania and Iowa. It teaches the understanding of research and development principles and processes and prepares for knowledge transfer from school to work. Students draw from their core subject knowledge and apply it in simulated experiences (e.g., epidemics, performing research to develop new cures).

2 **Unpack the standards to articulate essential concepts and skills.** Use curricula to articulate the essential understandings and 21st century skills contained within the standards. Ensure all curricula materials (curriculum guides, model units) clearly identify the big ideas and 21st century skills as the goals for learning.

The Iowa Core Curriculum defines the essential knowledge and skills that each student must learn to succeed in postsecondary life. The ICC includes content areas such as literacy, math, science and social studies and 21st century skills like civic, health, financial and technology literacy. In conjunction with the core curriculum, Iowa has created a framework that sets standards for teaching academic subjects to maximize rigor, increase student engagement, support in-depth coverage of material, and equip students with the skills required to prosper in today's world. http://www.corecurriculum.iowa.gov/

The Delaware Department of Education has developed Standards Clarification Documents for the various subject areas in which the state standards have been "unpacked" around Enduring Understandings and Essential Questions. http://www.doe.k12.de.us/infosuites/staff/ci/default.shtml

Henrico County Public Schools in Virginia has pursued a multi-year process to create and improve curriculum maps around 21st century learning. The process and samples are described here: http://bionicteaching.com/?p=1129

3 **Build widespread consensus around the big ideas and essential questions.** Involve educators and stakeholders at all levels to ensure the big ideas, essential questions and enduring understandings—particularly those that emphasize 21st century skills—are supported and understood.

North Carolina's "Future Ready Students" initiative is reflected in the State Board of Education's mission: to enable every public school student to graduate from high school, globally competitive for work and postsecondary education and prepared for life in the 21st century. This statewide vision frames the collaborative efforts between education, business and community leaders to improve teaching and learning, and informs the state's 21st century skills work in standards, professional development, curriculum and assessment.

4 **Use curriculum-embedded performance-based assessments.** Design and implement curriculum-embedded, performance-based assessments that are integrated and aligned with the state accountability system.

The Grand Island, Nebraska Public School District has developed K-12 curriculum maps for subject areas. The maps contain overarching Understandings and Essential Questions. In addition, the maps include curriculum-embedded performance assessments for the various subject areas. http://www.gips.org/

From the home page, select "Learning", then "Curricular Areas". Look for subjects with Design Maps; these maps contain specific "enduring understandings", "essential questions" and more.

5 **Commit to continuous improvement in 21st century curriculum design processes.** Commit to an ongoing process of reflecting upon and revising curricula with the purpose of improving the teaching and learning of 21st century skills over time.

The Virginia Beach City, Public School District has an ongoing process of curriculum development and review. The curriculum is built around Understandings and Essential Questions, and includes curriculum-embedded performance assessments that integrate 21st century skills with academic content.

6 **Collaborate.** Educators should initiate meaningful partnerships with key stakeholders, content developers and curriculum providers to ensure a wide range of instructional products are designed to produce 21st century skills outcomes.

New Jersey is partnering with several professional associations on a year-long project to create an exemplar curriculum that incorporates 21st century skills in each content area. These exemplars will be accessible to all school districts upon completion, including workshops supporting effective implementation of these curricular models.

7 **Use "Teach for Understanding" principles.** Develop and deliver lessons and units that connect the most essential concepts and skills students need to know and do. Avoid the teaching of disparate, unconnected facts that inhibits the development of critical thinking, problem solving and other 21st century skills. Coach students to progress from teacher-guided experience toward independent application, interpretation and explanation.[2]

Science Leadership Academy, Philadelphia, Pennsylvania: The Science Leadership Academy (SLA) is a partnership high school between the School District of Philadelphia and The Franklin Institute. SLA is an inquiry-driven, project-based high school focused on 21st century learning. http://www.scienceleadership.org/drupaled/

High Tech High, California: Curriculum at HTH schools is framed around answering questions and solving problems. Students work in teams to study questions and themes that cut across academic disciplines. http://www.hightechhigh.org/

Intel® Teach Elements: These short courses provide deeper exploration of 21st century learning concepts focusing on project based learning approaches. http://www.intel.com/education/elements/index.htm

ASCD Healthy School Communities: This effort serves as a community-building resource for schools and communities that work together to create healthy environments that support learning and teaching. http://www.healthyschoolcommunities.org

8 **Create meaningful opportunities for student demonstration and mastery of 21st century skills.** Ensure that students have real-world opportunities to synthesize, apply and demonstrate their mastery of key concepts and 21st century skills.

North Carolina is piloting a science class on genetic counseling that uses curriculum-embedded assessments. Students learn the science behind genetics and apply this knowledge to patient counseling scenarios. Skills like communication, information literacy and collaboration are intentionally taught, honed and assessed in an integrated fashion within the context of the science class.

9 **Deliver learner-centered instruction to instill 21st century skills.** Commit to meeting the unique 21st century skills needs of each student. Connect curriculum to learners' experiences and frames of reference to build upon each student's knowledge and experience and help them systematically expand their abilities and master new concepts and proficiencies.[3]

Maine's "Creating the Conditions for All Students to Graduate Post-Secondary, Career, and Citizenship Ready for the 21st Century" project focuses on creating a standards-based education system that emphasizes personalization. In this system, students do not move on to the next level of learning until they demonstrate proficiency as measured by the standards.

10 **Reflect, refine and improve 21st century skills instruction.** Educators should develop personal learning communities (and advocate for the school-wide time and support for them) and use them to reflect on and refine instructional methods that enhance 21st century skills mastery in classroom practice.

West Virginia conducts extensive programs (spanning over seven months) to engage educators in designing authentic, engaging units that incorporate big ideas and 21st century skills. The Department of Education brings teachers together for in-depth peer review sessions that strengthen the overall quality of their 21st century skills units and assessments. Just as important, these sessions provide teachers time to share their thinking and learning with peers, enhancing personal learning communities and networks.

[2] Brown, 2004
[3] Hammond, Linda Darling, p. 198

Learning Environments: Guiding Recommendations, Promising Practices

The following recommendations speak to enriching and expanding learning environments to maximize 21st century skills integration.

1 **Establish a 21st century vision for learning environments in your district.** In the 21st century, learning environments extend beyond brick and mortar buildings. Learning occurs in classrooms, but it also occurs virtually and through afterschool programs. It happens in the environment that surrounds the child, 24/7. These learning environments should accommodate the needs of each student and support the development of the whole child, ensuring their academic as well as their emotional, social and physical development.

The Build SF Institute's School-to-Career Program engages San Francisco students in architectural projects and internships that integrate real-life math, science, design and technology skills. http://www.edutopia.org/learning-design

2 **Ensure educational structures enable 21st century skills.** Physical spaces should be flexible and adaptable, enable collaboration, interaction and information sharing, and should be connected with the larger community that surrounds the school.

Three DesignShare 2007 winners all look and feel very different, as one would expect, given their very different student bodies and instructional missions:

- A nursery school in Japan features a huge indoor activity space that emphasizes unstructured play.
- An alternative learning center in Alaska, created from an old movie theatre, incorporates elements of that state's unique cultural heritage and focuses on self-directed learning.
- A Denver charter school, aimed at increasing the participation of low income and female students in technology, integrates high-tech design with "soft touch" furniture and moveable walls that promote the sensory experience of learning.

http://www.designshare.com/index.php/awards/2007

3 **Move toward flexible units of time that enable project-based work, interdisciplinary themes and competency-based measures of student progress.** Move away from the "seat time" approach to gauging annual student progress.

The Chugach School District in Alaska has a waiver from the Alaska Department of Education to use a performance-based system in ten content areas in place of the traditional Carnegie Units. http://www.chugachschools.com/

New Hampshire eliminated the Carnegie unit requirement; they will instead assess student achievements through demonstrations of subject matter mastery and application.

Rhode Island now uses the term "Carnegie Unit" to refer to courses that are evaluated on competence measures rather than seat time.

In both Rhode Island and New Hampshire, the emphasis is on real-world learning and demonstration of mastery.

4 **Ensure technical infrastructure sufficiently supports student learning.** Students should not expect to "power down" when they engage in the learning process. Technology investments must be made with intelligent strategic planning.

SIIA Vision K-20 is working toward their goal of every K-20 institution having an instructional and institutional framework that embraces technology and e-learning by the end of the decade.

Cisco Systems and Metiri Group have reviewed the research on the effectiveness of education technology, and outlined the general trends and their effectiveness to help educators invest more wisely in technology.

CoSN has created a resource website, Empowering the 21st Century Superintendent at http://www.superintendentempower.org/. The site provides information that helps superintendents make better technology-related decisions.

ISTE's CARET website bridges education technology research to practice by offering research-based answers to critical questions. http://caret.iste.org/

5 **Empower the "People Network" in learning environments.** This is one of the most important aspects of 21st century learning environments. Teachers must move from isolation to connection, creating an optimistic educational culture that positively impacts student learning. Teachers must have ways to refine their knowledge and skills in collaborative, supportive environments.

Teacher Leader Capacity Building Model: Southfield Public Schools, Michigan and Cypress Fairbanks ISD in Houston, Texas are implementing capacity building professional development using the teacher leader model at selected schools in their districts. Teacher leaders are leading the professional learning of their colleagues and have their classrooms serve as demonstration classrooms. District leaders have played an integral role in assuring that there is effective professional development planning in place before and during the implementation, including gathering evidence of changes in teacher practice. http://www.ascd.org

Standards: Guiding Recommendations, Promising Practices

While district leaders rarely play a role in setting policies that govern state standards, they can play a leadership role in how the standards are interpreted and used to enhance 21st century skills and themes in curriculum, instruction, professional development and assessments. The recommendations below are state-focused but are included for informational purposes.

1 **Integrate 21st century skills into core academic subject standards.** Each subject area should be treated differently, with an eye for thoughtful and authentic ways to incorporate skills like critical thinking, problem solving, communication, information literacy and technology literacy into the standards.

Several P21 Partner States have developed, or are in the process of developing, 21st century skills standards in core academic subjects. These states include West Virginia, North Carolina, Wisconsin and New Jersey.

2 **Integrate 21st century themes into core subject area standards where appropriate.** Global awareness, financial literacy, health literacy and civic literacy are all requirements in the 21st century and should be intentionally integrated into state standards wherever possible.

Iowa has integrated 21st century skills such as financial literacy, technology literacy, civic literacy and more into state standards and the core curriculum. http://www.corecurriculum.iowa.gov/

Wisconsin's Financial Literacy Standards set forth the knowledge, skills and attitudes students need to understand and make informed decisions for themselves and their families, laying the foundation for financially literate and responsible citizens. http://dpi.state.wi.us/standards/

ASCD's Healthy School Communities effort serves as a community-building resource for schools and communities that work together to create healthy environments that support learning and teaching. It also provides a space for networking and sharing of resources, ideas and practices that encourage the ongoing promotion of a coordinated approach to school health programming and policy within school communities. http://www.healthyschoolcommunities.org

National Health Education Standards (NHES) published by the American Cancer Society emphasize skill acquisition as one of the foundations for its work. These standards focus on ensuring that students understand concepts such as healthy promotion, disease prevention, and factors that influence health behaviors.

3 **Incorporate 21st century technology literacy and tools where appropriate into standards.** Technology increasingly plays a significant role in mastering subject area content knowledge. In the 21st century, a student's ability to conduct relevant science inquiry, mathematical processes and multi-disciplinary projects relies on technology literacy.

Several P21 Partner States have integrated (or are in the process of integrating) technology literacy skills into their standards. These states include West Virginia, North Carolina, Massachusetts, New Jersey, Iowa and Wisconsin.

ISTE National Education Technology Standards for students, teachers and administrators are strongly aligned with 21st century skills. http://www.iste.org

4 **Ensure standards are an integrated component of curriculum, assessment and professional development.** To be successful, any efforts around standards must flow through the entire education continuum and become fully integrated into every part of the teaching and learning cycle.

North Carolina has developed 21st century skills-aligned teacher standards that the State Board of Education adopted in 2007. http://www.ncptsc.org/Standards.htm

West Virginia has aligned professional development with 21st century skills across three levels: the State Department of Education, district and school leadership and practitioners. Under the state's direction, the West Virginia Commission for Professional Teaching Standards (WVCPTS) revised professional teaching standards to ensure alignment with the state's 21st century teaching and learning initiative, and developed a reference document that articulates what a 21st century teacher should know and be able to do. https://sites.google.com/a/wvde.k12.wv.us/wv-task-force-on-professional-teaching-standards/

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