

A Crosswalk of 21st Century Skills

In the following report, Hanover Research examines the framework of six different 21st century skills lists. These skills are subsequently compared with one another, to draw out the most and least common elements and themes.

Introduction

Across the United States, there is a growing concern over the quality of public education. Approximately one third of all students do not graduate after four years of high school, and nearly 40 percent of high school graduates feel inadequately prepared for college or the workplace. The consensus among parties and organizations involved in education is that the **American school system is failing to adequately equip students with the necessary skills and knowledge to contribute to society**. Results from national assessments and international comparison exams, such as the National Assessment of Educational Progress (NAEP), the Trends in International Mathematics and Science Study (TIMSS), and the Programme for International Student Assessment (PISA), demonstrate that American high school students are struggling to achieve the skills necessary to participate in a global economy.¹

Furthermore, changes to the economy, jobs, and businesses over the last several decades have reshaped workplaces and the nature of work. The increase in the number of service-sector jobs, which include “high-growth, high-wage and high-skilled occupations in new and emerging occupations,” requires students to have different skills and a greater familiarity with technology than ever before.²

According to the Partnership for 21st Century Skills, “There is growing consensus among policymakers, elected officials, business people, K-12 and postsecondary educators, philanthropists, parents, students, and the public that American high schools are not successfully preparing all students for success in the 21st century.” Implementing 21st century skills training is gaining popularity, as these skills are designed to increase achievement and prepare students for postsecondary education or the workplace.

The following report examines the key components of six different frameworks for 21st century skills and seeks to determine the differences and similarities between them. This enables us to make recommendations regarding elements of 21st century skill sets that are either “must-haves” or potentially up-and-coming. The first section offers this summary of our findings, while the following section details each of the six lists examined.

¹ “21st Century Knowledge and Skills in Educator Preparation.” Partnership for 21st Century Skills. 2010. p. 6-7.
http://www.p21.org/documents/aacte_p21_whitepaper2010.pdf

² Ibid.

Crosswalk and Summary of Results

We identified six unique 21st century skills lists to review in this report. Most school districts or state departments of education implementing 21st century skills now rely on the Partnership for 21st Century Skills' list or some variation of it, though there are exceptions. We also identified one up-and-coming list, the Assessment and Teaching of 21st Century Skills (ATC21S) initiative, sponsored by Microsoft and Cisco Systems. As it is still in development, the skills supported by ATC21S may change in the future. The six 21st century skill sets reviewed in this report are:

- ❖ Partnership for 21st Century Skills
- ❖ Tony Wagner's Global Achievement Gap Seven Survival Skills
- ❖ enGauge
- ❖ Iowa Essential Concepts and Skills – 21st Century Skills
- ❖ Connecticut Department of Education's 21st Century Skills
- ❖ Assessment and Teaching of 21st Century Skills (ATC21S)

Before embarking upon our discussion of 21st century skills, we overview the similarities and differences found across the six lists. The table on the following page contains a crosswalk of the skills found in each of the six lists we examined for this report, and highlights the most and least popular skill types. In the table below, skills are grouped by frequency of use, starting with the skills found on all six lists.

Table 1: Crosswalk of 21st Century Skills

Ranking	Skill	Partnership for 21 st Century Skills	Seven Survival Skills	enGauge	Iowa Essential Concepts and Skills	Connecticut Dept. of Ed	ATC21S
1st	Collaboration and teamwork	x	x	x	x	x	x
	Creativity, imagination	x	x	x	x	x	x
	Critical thinking	x	x	x	x	x	x
	Problem solving	x	x	x	x	x	x
2nd	Flexibility and adaptability	x	x	x	x	x	
	Global and cultural awareness	x		x	x	x	x
	Information literacy	x		x	x	x	x
	Leadership	x	x	x	x	x	
3rd	Civic literacy and citizenship	x			x	x	x
	Oral and written communication skills		x		x	x	x
	Social responsibility and ethics			x	x	x	x
	Technology literacy	x		x	x		x
	Initiative	x	x	x	x		
4th	Curiosity and inquisitiveness		x	x	x		
	Financial literacy	x			x	x	
	Health and wellness	x			x	x	
	Media literacy	x				x	x
	Productivity	x			x	x	
5th	Accountability				x	x	
	Entrepreneurialism	x	x				
	Information analysis		x		x		
6th	Basic literacy			x			
	Contextual learning					x	
	Environmental literacy	x					
	Interpersonal skills					x	
	Metacognition						x
	Visualization skills			x			

Note: Skills are ranked based on the frequency that they are found on the six skills lists examined in this report.

As is evident from the crosswalk above, there are certain core competencies that are supported in each of the 21st century skill sets. Interestingly, only four out of the 27 themes identified span across all six sources. These are:

- ❖ Collaboration and teamwork
- ❖ Creativity, imagination
- ❖ Critical thinking
- ❖ Problem solving

It is easy to see how these skills could be valuable to a new high school graduate and to employers, as well as how these skills can easily interact with one another. Creativity and imagination goes hand-in-hand with critical thinking and problem solving; one might even say to separate these categories is redundant.

Collaboration and teamwork is highlighted in many areas of education, not only in 21st century skills literature. The trend toward collaboration through the Internet is a strong force in today's world—from crowdsourcing, collaborative editing, social media, and networking, the reach of collaborative possibilities is endless.

Six themes are relatively *unpopular* among the 21st century skills lists. Only one of the six lists includes the following themes:

- ❖ Basic literacy (enGauge)
- ❖ Contextual learning (Connecticut)
- ❖ Environmental literacy (Partnership for 21st Century Skills)
- ❖ Interpersonal skills (Connecticut)
- ❖ Metacognition (ATC21S)
- ❖ Visualization skills (enGauge)

The Seven Survival Skills and the Iowa Essential Concepts and Skills lists do not include any of these unpopular themes. **Environmental literacy** is a surprising exclusion, given the increasing importance and emphasis on sustainability and green business practices. Basic literacy appears outright on only one list, but it can be argued that all curriculums include this goal. It is also surprising that no other framework, aside from Connecticut's, specifically identifies **interpersonal skills** as a necessary 21st century skill. However, many other commonly cited skills, like collaboration and teamwork, rely on strong interpersonal skills.

Briefly, we look at the remainder of the themes identified. The following skills are present on all but one (five) of the lists:

- ❖ Flexibility and adaptability
- ❖ Global and cultural awareness

- ❖ Information literacy
- ❖ Leadership

The following skills are present on four of the lists:

- ❖ Civic literacy and citizenship
- ❖ Oral and written communication skills
- ❖ Social responsibility and ethics
- ❖ Technology literacy
- ❖ Initiative

The following skills are present on two or three of the lists:

- ❖ Curiosity and inquisitiveness
- ❖ Financial literacy
- ❖ Health and wellness
- ❖ Media literacy
- ❖ Productivity
- ❖ Accountability
- ❖ Entrepreneurialism
- ❖ Information analysis

Up and Coming Skills

Based on our review of 21st century skills, we highlight the following up and coming themes:

- ❖ **Global Community**
 - Global and cultural awareness
 - Civic literacy and citizenship
 - Social responsibility and ethics
- ❖ **Dynamic Work Environment**
 - Flexibility and adaptability
 - Initiative
 - Entrepreneurialism

There seems to be a definite trend towards emphasizing the global community, from **civic literacy and citizenship** and **global and cultural awareness** to **social responsibility**. These types of skills are designed to help students participate in the global community and economy with sensitivity and respect.

Another up and coming skill is the ability to **demonstrate flexibility and adaptability**—an outcome of living in a fast-paced, digital environment in which

information and situations changes rapidly. These skills along with **initiative**, another skill present on four of the lists, aim to teach students to not only recognize the fast pace of the digital world but also to take it upon themselves to seek out the new and innovative. **Entrepreneurship** also falls into this general theme.

The following section includes additional details on the six 21st century skills lists discussed above.

21st Century Skills Frameworks

This section provides an overview of the frameworks for 21st century skills as designed by six different organizations:

- ❖ Partnership for 21st Century Skills
- ❖ Tony Wagner’s Global Achievement Gap Seven Survival Skills
- ❖ enGauge
- ❖ Iowa Essential Concepts and Skills – 21st Century Skills
- ❖ Connecticut Department of Education’s 21st Century Skills
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The Partnership for 21st Century Skills

The Partnership for 21st Century Skills, a national consortium of private companies, nonprofit organizations, and state departments of education, is challenging schools throughout the United States to improve the preparedness of students upon high school graduation. A 2006 publication from the Partnership argues that the traditional high school curriculum does not include those aspects which are required for success in a career or postsecondary education in the 21st century, and that there has been little or no consideration of such aspects in measuring the results that are essential to high school students today. As the more traditional metrics such as attendance, graduation, and college matriculation are no longer sufficient indicators of student achievement after graduation, “high schools must be designed, organized, and managed with a relentless focus on the results that matter in the 21st century.”³

The Partnership presents three ideas about high schools that demonstrate the necessity of the adoption of broader and more current standards of student success after high school graduation. First, **the results that matter for high school graduates in the 21st century are different and extend beyond the traditional metrics of measuring success.** If high schools could ensure that all students met traditional standards, there would still remain a significant percent of students underprepared for success in a profession or postsecondary education after graduation.

Second, the Partnership argues that improving student success requires high schools to **redefine traditional standards of “rigor” to encompass mastery of 21st century skills and content,** in addition to the traditional core academic subjects. Graduates must be competent in critical thinking, problem solving, and effective communication as related to core subjects and new 21st century content. Concepts such as learning and thinking skills, information and communication technology

³ Ibid.

literacy skills, and life skills are essential for success after high school, regardless of an individual student's future plans.

Finally, this **combination of 21st century skills with traditional academic content should be the basis for designing and creating truly effective high schools.** School administrators and departments of education should be challenged to develop goals to integrate 21st century skills into all high schools, thus preparing students to succeed in postsecondary education or a profession upon graduation. Many schools have found this request challenging, as altering traditional instructional structures and academic standards requires time, money, and the cooperation and participation of all teachers.⁴ Working in combination with these three ideas is the “**21st Century Learning Environment**,” in which learning practices, human support, and physical environments work in combination to achieve positive teaching and learning outcomes. For instance, equitable access to quality learning tools, technologies, and resources must be available for all students and teachers, and architectural and interior designs must support access to these resources in group, team, and individual learning formats.⁵

In order to achieve these results, the Partnership for 21st Century Skills puts forth suggested core subjects and 21st century themes for educators. While core subjects are those defined by the Elementary and Secondary Education Act, the Partnership also provides five “21st Century interdisciplinary themes” that are required to promote high-level understanding of academic content.⁶

- ❖ **Global Awareness:** Understanding global issues, other nations, and other cultures.
- ❖ **Financial, Economic, Business, and Entrepreneurial Literacy:** Knowing how to make economic choices, understanding the role of the economy in society.
- ❖ **Civic Literacy:** Learning how to participate effectively in civic life, exercising the rights and obligations of citizenship.
- ❖ **Health Literacy:** Obtaining, interpreting, and understanding basic health information and services; understanding preventive physical and mental health measures.

⁴ “Results that Matter: 21st Century Skills and High School Reform.” Partnership for 21st Century Skills. March 2006. <http://www.p21.org/documents/RTM2006.pdf>

⁵ “21st Century Knowledge and Skills in Educator Preparation.” Op. cit. p. 39.

⁶ Ibid. p. 9.

- ❖ **Environmental Literacy:** Demonstrating knowledge and understanding of the environment and the circumstances and conditions affecting it; taking individual and collective action towards addressing environmental challenges.

Additionally, the Partnership puts forth a selection of 21st century skills, explained in the table below.⁷

Table 2: Partnership for 21st Century Skills

21 st Century Skill	Description
Learning and Innovation Skills	Critical Thinking and Problem Solving , e.g., effectively analyze and evaluate evidence, arguments, claims, and beliefs; solve different kinds of non-familiar problems in both conventional and innovative ways.
	Collaboration , e.g. demonstrate ability to work effectively and respectfully with diverse teams.
	Creativity and Innovation , e.g., use a wide range of idea creation techniques to create new and worthwhile ideas.
Information, Media, and Technology Skills	Information Literacy , e.g., access and evaluate information critically and competently; manage the flow of information from a wide variety of sources
	Media Literacy , e.g., understand both how and why media messages are constructed; create media products by understanding and utilizing the most appropriate media creation tools, characteristics and conventions.
	ICT (Information, Communications, and Technology) Literacy , e.g., use technology as a tool to research, organize, evaluate and communicate information.
Life and Career Skills	Flexibility and Adaptability
	Initiative and Self-Direction
	Social and Cross-Cultural Skills
	Productivity and Accountability

⁷ Ibid. p. 10-11.

The Global Achievement Gap – Seven Survival Skills

In *The Global Achievement Gap*, author Tony Wagner examines the modern domestic education system and considers why American students are falling **behind their international peers** on a number of benchmarks. The global achievement gap, he states, is the gap between what students are learning and what students will actually need for citizenship in the 21st century.⁸

Wagner attributes this gap to several factors. First, **the way in which we assess our students is counter-productive** when it comes to life skills. Rote memorization requires very little thinking. Contrasting this is the status of assessment in Europe, which relies on oral and written exams along with student interviews in order to determine competence. Wagner also states that **our curricula are flawed**—students simply are not expected to reason, analyze, write well, or develop skills in any number of areas required to pursue education or a career in the modern age. Finally, the achievement gap is an outcome of **our overall attitude toward teaching**: successful European schools have transformed teaching from an “assembly line” job into a “knowledge worker” job, resulting in only a five percent variance in achievement between lowest and highest performing schools.⁹

In order to combat this gap, Wagner developed a group of “**Seven Survival Skills.**” These skills were developed through interviews with business leaders and an extensive literature review to determine what skills and knowledge were necessary to enter the modern day workforce. Wagner also determined through these interviews what skills the current workforce is seen to be deficient in. The resulting list, Wagner states, provides “the skills all of us need to be engaged and effective citizens in a 21st century democracy, as well as to be life-long learners.”¹⁰

The Seven Survival Skills are the following:¹¹

- ❖ **Critical Thinking and Problem Solving:** Workers must be “knowledge workers,” thinking continuously about how to improve products and services. Markets are changing too fast for companies to survive my merely making incremental improvements.
- ❖ **Collaboration Across Networks and Leading by Influence:** The very nature of teamwork is changing, as virtual networks allow individuals to work on international teams meeting via conference calls and webcasts. In situations

⁸ “The Global Achievement Gap.” Harvard Graduate School of Education. 20 Aug 2008.
http://www.gse.harvard.edu/news_events/features/2008/08/20_wagner.php

⁹ Ibid.

¹⁰ Ibid.

¹¹ Wagner, Tony. “Rigor Redefined.” Advisor’s Corner, October 2008.
http://www.hosa.org/emag/articles/advisors_corner_oct08_pg2_5.pdf

in which the traditional vertical hierarchy is fading, leadership skills are increasingly important.

- ❖ **Agility and Adaptability:** Workers will need to be able to use a variety of tools to adapt to and solve new problems. The job for which some is hired may not exist in the following year, so an employee's adaptability and learning skills are more important than technical skills.
- ❖ **Initiative and Entrepreneurialism:** One of the problems in large companies today is risk aversion. The challenge is to create an entrepreneurial culture in which individuals can set lofty goals and not be blamed for failing. Instead, workers will be blamed for not trying.
- ❖ **Effective Oral and Written Communication:** New graduates frequently have difficulty being clear and concise and cannot communicate their thoughts effectively. Being able to create focus, energy, and passion around one's points is more critical than proper spelling, grammar, and punctuation.
- ❖ **Accessing and Analyzing Information:** If employees are not able to process information effectively, the sheer amount of information available today can stop them in their tracks.
- ❖ **Curiosity and Imagination:** Employees must be "more than just smart." They must be inquisitive, engaged, and interested in the world. It is no longer enough to create products which are adequately priced and reasonably functional, they must also be unique and beautiful. Developing individuals' capacity for empathy, imagination, and creativity will be increasingly important.

enGauge 21st Century Skills

The Metiri group provides consulting services to the education community, focusing on how educators can advance effective teaching and learning, use technology in meaningful ways, and foster 21st century skills in students, teachers, and administrators.¹² In collaboration with the North Central Regional Educational Library and Learning Point Associates, the Metiri Group identified four groups of 21st century skills, called the enGauge 21st Century Skills, students will need in order to **thrive in a digital economy**. The list was developed through extensive literature reviews, researching on emerging characteristics of the Net-Generation, a review of workforce trends, analysis of nationally recognized skill sets, and input from educators.

¹² "Our Work." Metiri Group. http://metiri.com/our_work.html

The group recognizes that the world is being **transformed by technology** and human ingenuity. With the rapid rate of change occurring around us, students need to develop new skill sets to cope and thrive. The enGauge 21st Century Skills take requirements for technology literacy set forth by No Child Left Behind and further define what students need to succeed in the digital age.¹³

enGauge defines four essential 21st century skills which contribute to the success of students. The four headings and their respective sub-headings are presented in the table below.

Table 3: enGauge 21st Century Skills

21 st Century Skill	Description
Digital Age Literacy— Today's Basics	Basic, Scientific, and Technological Literacy: These are no longer limited only to reading, writing, and arithmetic, but now include reading critically, writing persuasively, and thinking and reasoning logically.
	Visual and Information Literacy: Students need good visualization skills to interpret visual information and communicate using imagery.
	Cultural Literacy and Global Awareness: Globalization of commerce and trade results in the need for cultural literacy. There is a greater need for knowing, understanding, and appreciating other cultures.
Inventive Thinking— Intellectual Capital	Adaptability/Managing Complexity and Self-Direction: Individuals must become self-directed learners who can analyze and adapt to new conditions as they arise and respond to these changes independently.
	Curiosity, Creativity, and Risk-Taking: Curiosity fuels lifelong learning and contributes to quality of life. Risk-taking is necessary to make leaps in discoveries and learning.
	Higher-Order Thinking and Sound Reasoning: Students must learn how to think creatively, solve problems, and plan, design, execute, and evaluate solutions.
Effective Communication— Social and Personal Skills	Teaming and Collaboration: The complexity of today's world requires a high degree of specialization by decision makers, who must then team with other specialists to accomplish complex tasks.
	Personal and Social Responsibility: Emerging technologies often present ethical dilemmas. Students must grasp this responsibility and contribute as informed citizens.
	Interactive Communication: Students must understand how to communicate using technology and its associated problems such as scheduling over time zones and language issues.

¹³ "enGauge 21st Century Skills." NCREL.

http://www.unctv.org/education/teachers_childcare/nco/documents/skillsbrochure.pdf

21 st Century Skill	Description
Quality, State-of-the-Art Results	<p>Prioritizing, Planning, and Managing for Results: Employees cannot simply concentrate on reaching the goals of a project—they must anticipate unexpected outcomes as well.</p>
	<p>Effective Use of Real-World Tools: Businesses increasingly use digital tools to help customers solve problems for themselves.</p>
	<p>High Quality Results with Real-World Application: There are learning benefits for students who build authentic products with tools, such as sandcastles, computer programs, graphs, or musical compositions. These experiences provide students with deep insights into their chosen domain.</p>

Digital age literacy is important due to the fact that **as society changes, the skills needed to participate in communities and navigate life change**. Inventive thinking is increasingly critical in our everyday lives as technology becomes more prevalent—“in effect, because technology makes the simple tasks easier, it places a greater burden on higher-level skills.”¹⁴ Effective communication skills are essential for success in today’s knowledge-based economy. Finally, productivity is key as our economy is driven by information and knowledge—productivity can determine whether an individual succeeds or fails in the workforce.

Iowa Essential Concepts and Skills – 21st Century Skills

In the 2007 legislative session, the Iowa Legislature established a five-part framework for 21st century skills across the state. The following areas make up the Iowa 21st Century Essential Concepts and Skills:

- ❖ Employability Skills
- ❖ Financial Literacy
- ❖ Health Literacy
- ❖ Technology Literacy
- ❖ Civic Literacy

Employability skills contribute to outcomes that are valued for individuals and society and **deemphasize knowledge related to specific trades or occupations**. Employers are demanding that employees work productively in teams, communicate effectively, think innovatively, and solve problems creatively. The employability skills, then, speak to these needs and attempt to prepare a ready workforce. Financial literacy is closely related to an individual’s emotional, personal, social, economic, and employment success. Financial literacy will enable students to **succeed in a complex global environment**. Health literacy is important as it empowers individuals to make decisions about their health as they progress through life. Being health literate

¹⁴ Ibid. p. 4.

influences a range of life's activities, from home, school, and work to society and culture. Technology literacy is obviously an important trait moving forward in today's digital economy. Technology literacy supports preparation of students as global citizens capable of **self-directed learning**. Civic literacy skills are designed to provide students with the knowledge needed to be an active and responsible citizen.¹⁵

Within this framework, educators sought to identify common learning skills that would allow students to thrive after graduation. Iowa's 21st century Essential Skills and Concepts were developed through collaboration between educators, business, and industry representatives. The Framework for 21st Century Learning, enGauge, and What Work Requires of Schools were all consulted in a literature review seeking to bring together the common elements of common frameworks.¹⁶ The goal of the essential skills is not to enable students to do well in school, but to help them do well in the lives they lead outside of school.¹⁷

Essential Skills **vary by grade level** to make them more accessible to teachers and students. In many cases the skills are duplicated across grade levels. For the purposes of this report, we present the skills required at the **high school level**, as those for lower grades are typically simpler versions of these concepts. It should also be noted that the civil literacy skills are taken directly from the more general Iowa Essential Concepts and Skills list for Social Studies – Political Science and Civil Literacy.

Employability Skills

- ❖ Communicate and work productively with others, incorporating different perspectives and cross cultural understanding, to increase innovation and the quality of work.
- ❖ Adapt to various roles and responsibilities and work flexibly in climates of ambiguity and changing priorities.
- ❖ Demonstrate leadership skills, integrity, ethical behavior, and social responsibility while collaborating to achieve common goals.
- ❖ Demonstrate initiative and self-direction through high achievement and lifelong learning while exploring the ways individual talents and skills can be used for productive outcomes in personal and professional life.
- ❖ Demonstrate productivity and accountability by meeting high expectations.

¹⁵ "21st Century Skills." Iowa Core Curriculum.

<http://www.corecurriculum.iowa.gov/ContentArea.aspx?C=21st+Century+Skills>

¹⁶ Ibid.

¹⁷ McNulty, Ray. Iowa High School Summit, 10 Dec 2007. Quoted in Essential Concepts and Skills with Details and Examples, Iowa Core Curriculum.

Financial Literacy

- ❖ Demonstrate financial responsibility and planning skills to achieve financial goals for a lifetime of financial health.
- ❖ Manage money effectively by developing spending plans and selecting appropriate financial instruments to maintain positive cash flow.
- ❖ Make informed and responsible decisions about incurring and repaying debt to remain both creditworthy and financially secure.
- ❖ Evaluate and identify appropriate risk management options, including types of insurance, non-insurance, and identity protection.
- ❖ Assess the value, features, and planning processes associated with savings, investing, and asset building, and apply this knowledge to achieve long-term financial security with personal and entrepreneurial goals in a global market.
- ❖ Understand human, cultural, and societal issues related to financial literacy, and practice legal and ethical behavior.

Health Literacy

- ❖ Demonstrate functional health literacy skills to obtain, interpret, understand and use basic health concepts to enhance personal, family, and community health.
- ❖ Synthesize interactive literacy and social skills to establish and monitor personal, family and community goals related to all aspects of health.
- ❖ Apply critical literacy/thinking skills related to personal, family and community wellness.
- ❖ Use media literacy skills to analyze media and other influences to effectively manage health risk situations and advocate for self and others.
- ❖ Demonstrate behaviors that foster healthy, active lifestyles for individuals and the benefit of society.

Technology Literacy

- ❖ Demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
- ❖ Use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- ❖ Apply digital tools to gather, evaluate, and use information.
- ❖ Demonstrate critical thinking skills using appropriate tools and resources to plan and conduct research, manage projects, solve problems and make informed decisions.
- ❖ Understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

- ❖ Demonstrate a sound understanding of technology concepts, systems and operations.

Civic Literacy (*Taken from Social Studies - Political Science/ Civic Literacy*)

- ❖ Understand the rights and responsibilities of each citizen and demonstrate the value of lifelong civic action.
- ❖ Understand how the government established by the Constitution embodies the enduring values and principles of democracy and republicanism.
- ❖ Understand the purpose and function of each of the three branches of government established by the Constitution.
- ❖ Understand the differences among the complex levels of local, state and national government and their inherent, expressed, and implied powers.
- ❖ Understand strategies for effective political action that impact local, state, and national governance.
- ❖ Understand how law and public policy are established at the local, state, and national levels of government.
- ❖ Understand how various political systems throughout the world define the rights and responsibilities of the individual.
- ❖ Understand the role of the United States in current world affairs.

Connecticut Department of Education

The concern for improving the preparedness of high school graduates for participation in and contribution to a profession or postsecondary education in the global community is currently an important discussion in Connecticut. The Connecticut Department of Education is determined to provide students with effective curricula designed to integrate 21st century skills into traditional academic standards at the high school level. The state's Department of Education identifies the following achievements and standards as 21st century skills:

- | | |
|---|---|
| ❖ Global awareness | ❖ Ethics |
| ❖ Financial, economic, business, and entrepreneurial skills | ❖ Critical thinking and problem solving |
| ❖ Civic literacy | ❖ Accountability |
| ❖ Health and wellness awareness | ❖ Adaptability |
| ❖ Communication | ❖ Personal productivity |
| ❖ Creativity and innovation | ❖ Personal responsibility |
| ❖ Collaboration | ❖ Interpersonal skills |
| ❖ Contextual learning | ❖ Self-direction |
| ❖ Information and media literacy | ❖ Social responsibility |
| ❖ Leadership | ❖ Information literacy |

In addition to these essential skills, aptitude with technology is a new “basic” for those who live in the 21st century. Students must be able to use technology effectively, which means better equipping schools to ensure equal access.

“The Connecticut Plan,” developed by the Connecticut State Department of Education, identifies the **three concepts of engagement, 21st century learning, and rigor, as essential to student success.** The first element, **engagement**, connects students to learning and provides a foundation for student achievement and development of lifelong learners. The following five components are directly related to high quality student engagement in the context of high school reform:

- ❖ Provide an Individual Success Plan for every student
- ❖ Require a Capstone Experience for every student
- ❖ Implement best intervention practices
- ❖ Place greater attention on an expanded education range (grades 6-14)
- ❖ Expand external partnerships

Second, **21st century skills** must be immersed in the traditional academic curriculum standards to provide students with the ability to locate, analyze, interpret, and communicate information. Characteristics such as leadership, collaboration, social responsibility, and adaptability to change are essential to competing in and contributing to the global economy and society of the 21st century.

Finally, **academic rigor** challenges students to achieve beyond their expectations and develop a deep understanding of the curriculum content.¹⁸

Assessment and Teaching of 21st Century Skills

Cisco Systems, Intel Corporation, and Microsoft Corp. are jointly sponsoring a project to research and develop new approaches, methods, and technologies for measuring the success of 21st century teaching and learning. This initiative, called the Assessment and Teaching of 21st Century Skills (ATC21S), is focused on **defining 21st century skills and developing ways to measure them.**¹⁹

Six countries (Australia, Finland, Portugal, Singapore, the United States, and the United Kingdom) are involved in the pilot project, with more than 60 education experts leading the research phase. Associate countries have since been added, which adds to the project’s language diversity.²⁰ In 2009, the group defined their 21st century

¹⁸ Connecticut State Department of Education, “The Connecticut Plan.”

<http://www.sde.ct.gov/sde/lib/sde/pdf/pressroom/TheConnecticutPlan.pdf>

¹⁹ “Assessment and Teaching of 21st Century Skills.” ATC12S. January 2010.

http://www.cisco.com/web/about/citizenship/socio-economic/docs/ATC21S_Exec_Summary.pdf

²⁰ “Project Update.” ATC12S. March 2011. http://atc21s.org/wp-content/uploads/2011/03/Project_Update_Nov2010-Jan2011_Final.pdf

skills framework and began determining what kind of data could be collected to evaluate progress in achieving these goals.

The 21st century skills identified by the ATC12S project are grouped under four headings, each with several sub-categories of skills, as follows:²¹

❖ **Ways of thinking**

- Creativity and innovation
- Critical thinking, problem solving, decision making
- Learning to learn, metacognition (knowledge about cognitive processes)

❖ **Ways of working**

- Communication
- Collaboration

❖ **Tools for working**

- Information literacy
- Information and communication technology literacy

❖ **Living in the world**

- Citizenship – local and global
- Life and career
- Personal and social responsibility—including cultural awareness and competence

Currently, ATC21S has moved from conceptual into practical and is working with two skills that span all four categories: Collaborative problem-solving and ICT literacy.²² The ATC21S is a dynamic list of 21st century skills, and will likely continue to be refined in the future.

²¹ “Assessment and Teaching.” Op. cit.

²² “What Are 21st Century Skills.” ATC21S. <http://atc21s.org/index.php/about/what-are-21st-century-skills/>

Project Evaluation Form

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