Resources

ADDITIONAL TECHNOLOGY INTEGRATION RESOURCES

In addition to the list below of Additional Resources, included also are NYSUT's Principles for Taking the Lead in Defining Excellence, for both P-12 and Higher Education, and the International Society for Technology in Education (ISTE) Standards, which are reprinted with permission.

U.S. Department of Education

Transforming American Education: National Education Technology Plan 2010.
Office of Educational Technology.
Calls for applying advanced technologies to improve student learning.
Presents five major goals in the areas of learning, assessment, teaching, infrastructure and productivity.
http://www.ed.gov/sites/default/files/netp2010-execsumm.pdf

Teacher's Guide to International Collaboration on the Internet
The purpose of this guide is to assist teachers in reaching out globally. This is an online resource with links relevant for elementary, middle and high school projects. This guide also connects teachers with organizations that are involved with international education by use of Internet.
http://www2.ed.gov/teachers/how/tech/international/index.html

Teachers' Use of Educational Technology in U.S. Public Schools: 2009.
Gray, L., Thomas, N., and Lewis, L. (2010). (NCES 2010-040). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
This report provides national data related to the availability of educational technology in public elementary and secondary settings, as well as the use of this technology.
http://www.nces.ed.gov/pubs2010/2010040.pdf

Center for Implementing Technology in Education (CITEd)

CITEd identifies evidence-based, promising, and emerging practices that assist schools and practitioners to adopt and implement technology. CITEd is funded by the U.S. Department of Education and provides innovative online technical assistance tools, professional development, and communities of practice.
http://www.cited.org/index.aspx?page_id=8

Resources

New York State Education Department

Regents Statewide Learning Technology Plan

This Plan was approved by the Board of Regents at the February 2010 meeting. Its goals include the areas of digital content, digital use, digital capacity and access, leadership, accountability and funding. This plan is designed to utilize the many resources of the University of the State of New York.
http://www.p12.nysed.gov/edtech/

Accessible Instructional Materials (AIM)

The Individuals with Disabilities Education Act (IDEA) requires school districts to provide materials that are accessible to students who are blind or otherwise unable to use printed materials. Instructional materials are defined as textbooks and related core materials such as workbooks. This NYSED site provides information on accessible formats for materials—including links to the National Instructional Materials Access Center (NIMAC). NIMAC is the repository where NIMAS files are stored. NIMAS stands for the National Instructional Materials Accessibility Standard. NIMAS is a technical specification for accessible files.
http://www.emsc.nysed.gov/specialed/aim/

NYSED Teaching with Technology

Teaching with Technology provides links to resources such as the Consortium for School Networking, Classrooms at Work, and Digital Video for Education.
http://www.emsc.nysed.gov/technology/resources/teaching.html

Organizations

International Society for Technology in Education (ISTE)

ISTE is a nonprofit membership association which seeks to improve teaching, learning, and school leadership by advancing the effective use of technology. ISTE is the home of the National Educational Technology Standards (NETS), the Center for Applied Research in Educational Technology (CARET), and the National Educational Computing Conference (NECC).
www.iste.org

The New York State Association for Computers and Technologies in Education

NYSCATE is an affiliate of ISTE. This is a non-profit organization of educators and administrators in New York state dedicated to furthering the use of technology in schools.
http://www.nyscate.org/aboutus.cfm

Other Resources

New York State Teacher Centers

The Teacher Center Network continues to be recognized as an effective vehicle for information about, and training in, the use of technology for instruction. Public-private partnerships with the network have been strengthened and expanded. The Teacher Center network executes a variety of statewide public-private partnerships designed to bring high quality technology resources to P-16 educational institutions such as Verizon Thinkfinity, the Online Academy, SAS Curriculum Pathways, and now Google Apps.
http://www.nyiteez.org/NYteachercenters/homepage.htm

American Federation of Teachers: Recommended Classroom Materials

Links to recommended materials available on the Web. Sorted into topics that can be used as lessons or supplements.
aft.org/yourwork/tools4teachers/materials.cfm

National Education Association: FREE Technology and Media Literacy Resources

Links to free technology and media literacy resources. These are listed by grade level: Pre-K, Elementary School, Middle School, and High School.
http://www.nea.org/tools/40699.htm

The Word and the World: Technology Aids English-Language Learners.
Smart, M.P. (2008). Retrieved from *Edutopia.org*
Author describes approaches at Cinnabar Elementary School in Petaluma, California. Teachers use an array of different types of technologies to enhance the achievement of students who are English language learners. These are one-to-one approaches as well as multi-week class projects. The goal is to increase skills such as the acquisition of phonics, vocabulary, fluency, and comprehension skills.
http://www.edutopia.org/technology-software-english-language-learners

The Practical and Fun Guide to Assistive Technology in Public Schools.
Bugaj, B., & Norton-Darr, S. (2009). Washington, DC: International Society for the Technology in Education.
This guide offers information related to technological tools and strategies to assist students with disabilities. Topics range from evaluation and team building to implementation strategies for students. Focus is on practical information for students, families, IEP teams and Assistive Technology professionals.

Resources

Meaningful Technology Integration in Early Learning Environments.
The National Association for the Education of Young Children/Beyond the Journal.
(September 2008).
This article provides an example of the integration of several technologies into project-based curriculum for young children. Examples include digital whiteboard, document camera, and less expensive technologies such as digital cameras and e-mail. Authors state that such tools can support a curriculum that is learner-centered and play-oriented.
http://www.naeyc.org/files/yc/file/200809/OnOurMinds.pdf

Differentiating Instruction with Technology in Middle School Classrooms.
Smith, G. E. & Throne, S. (2009). Washington, DC: International Society for the
Technology in Education.
Authors focus on different interests, backgrounds, and goals that students have and how differentiated instruction through technology can make instruction effective and engaging. Sample activities across content areas are offered.

Web 2.0 How-To for Educators.
Schrum, L. & Solomon, G. (2010). Washington, DC: International Society for the
Technology in Education.
The authors discuss Web 2.0, the second generation of the World Wide Web. Links are made to student engagement, creativity, and higher order learning skills. This focuses on the what, when and why of specific tools such as blogs, wikis, social networking, and Google Earth.

Tar Heel Reader
This site is a resource for using and making books for all levels of literacy and many different languages. This is provided by the Center for Literacy and Disability and the Department of Computer Science at the University of North Carolina at Chapel Hill. This site can be particularly helpful for finding age-appropriate short digital books for students with developmental disabilities.
http://tarheelreader.org/

Library of Congress

Available materials include a growing collection of photographs, books, maps, sound recordings, and other materials related to online research. The Library of Congress provides one of the largest sources of high-quality content (noncommercial) available on the Internet.
http://www.loc.gov/library/about-digital.html

Public-Private Partnerships in Technology: NYS Teacher Centers

Online resources for teachers and students are an integral component of the educational enterprise, and when used effectively, can have a significant impact on instructional design and student learning. Yet the sheer volume of resources and the varying quality can be problematic. The following partnerships between teacher centers and the private sector have developed steadily over the years, and provide resources that are high quality and easily accessible to busy teachers. Each partnership program:

- supports integrating technology and curriculum across core content areas;

- has standards-based content delivered through lessons, web resources, and student activities to support a learner-centered approach;

- ensures the successful delivery of professional development by providing the teacher with an all-inclusive plan including lesson design and details, objectives, assessment strategies and enrichment activities; and

- can be used "as is" or "mix and match" to meet student, classroom and curricular needs.

Many partnership professional development programs are delivered in traditional face-to-face classes and electronically using tools like Moodle, Elluminate and SafariLive. These partnership programs are open to all New York educators through their local teacher center — and literally represent a "who's who" of the best in the area of technology.

ThinkFinity

ThinkFinity (formerly MarcoPolo) project is a partnership with Verizon bringing standards-aligned content materials to teachers, which includes 2,500 lesson plans and more than 60,000 learning objects created and vetted by national professional organizations. More than 22,000 teachers in New York have been trained through the teacher centers to integrate these free resources into their curriculum. Specialized trainings are available for using the content with interactive whiteboards. Trainings are also available which focus on special populations, as well as parents. The unique New York state ThinkFinityNY site *(www.thinkfinityNY.org)* gets well over 1.5 million hits per year, a testimony to both the quality of the content and the professional development. Verizon estimates that its contribution toward the NYS public/private partnership is well over $800,000 per year.

Intel Teach

The teacher center partnership with Intel has made it the roll-out leader in New York state for the Intel Teach program. These courses provide teachers and administrators with a deep understanding of how to integrate technology appropriately into their classrooms, evaluate project-based learning activities and ensure participation by all students. Teacher centers have prepared master trainers who provide end-user training throughout the state. Two of the courses, delivered either face–to-face or online, are available for graduate credit through a partnership with the New York Institute of Technology (NYIT). *continued on following page*

Resources

SAS Curriculum Pathways

SAS Curriculum Pathways *(www. sascurriculumpathways.com)* and New York state teacher centers have partnered to deliver professional development and training that will support the integration of high-quality, secondary resources in classrooms. Curriculum Pathways is designed to enhance student achievement and teacher effectiveness by providing free, award-winning, Web-based curriculum resources in math, English language arts, science, social studies and Spanish. The program uses a broad range of instructional strategies and techniques, targets higher-order thinking skills and employs a learner-centered approach. The Teacher Center Technology Committee has arranged for the creation of a master account for every school district in New York state. SAS estimates that this partnership brings $5 million in resources to New York's schools.

NYIT Educational Enterprise Zone

The NYIT Educational Enterprise Zone, in cooperation with New York state's teacher centers, brings hundreds of live, interactive sessions connecting schools and libraries to museums and cultural centers throughout the state, country and world via Web 2.0 and videoconferencing.

Content providers include the NY Hall of Science, Albany Institute of Art and History, the Smithsonian, the Metropolitan Museum of Art and the Museum of Chinese in America. A full list of partners can be found at: *http://www.nyiteez.org/*

Oracle's ThinkQuest

To bring the skills of invention, creation and collaboration to schools, teacher centers have partnered with NYIT and the Oracle Foundation to implement Oracle's ThinkQuest *(www.thinkquest.org)* program. This partnership will collaborate with associated Boards of Cooperative Educational Services (BOCES) to train 2,000 teachers on how to integrate 21st-century skills instruction and project learning into their curricula using ThinkQuest. ThinkQuest's powerful professional development model will enable educators to integrate technology into their curricula with confidence and have secure Web-based collaborative space for use locally or shared throughout the world. In addition, teachers and students will have the opportunity to enter the work they produce into the ThinkQuest International Competition 2011, which challenges students to solve real-world problems by creating Web-based projects, digital media, or Web-based applications.

Professor Garfield Foundation

A partnership with the Professor Garfield Foundation *(www.professorgarfield.org)* brings to schools the sophisticated learning tools and content bundled in the charm and whimsy of Garfield the Cat. These resources include support materials for reading, math, cyber-safety and anti-bullying, cartoon and graphic novel creation. Resources for students with varying learning needs and styles are also provided. The centers recently ran a contest with the foundation for grades 3-5 centered on building a comic panel on saving the environment and have just launched a contest for grades K-2 on bullying prevention *(http://toon-books.com/bully_flyer.php)*.

Faulkes Telescope

A partnership with Faulkes Telescope brings the use of the Stellarium from England to teachers and students via computer through the use of real-time audiovisual interactive online work with Elluminate LIVE. Telescopes located in Australia and Hawaii are controlled through an Internet interface on the Faulkes site (*http://www. faulkestelescope.com/aboutus)*. Teachers can schedule where and when they want their students to scan in the skies, then interpret the

collected images using various filters and data collection. The culminating activity is a collaborative project with teachers in the United States and United Kingdom.

VITAL (Video in Teaching and Learning)

Through VITAL, Video in Teaching and Learning for NYS educators, a property of WNET.ORG *(http://www.thirteen.org/edonline/edvideo/index.html)*, we have expanded our learning communities offering training in the use of its free, online library of public television content multimedia resources for pre-K-12. This partnership allows us to bring professional development using thousands of classroom-ready, standards-based resources and content to New York's teachers for use with their students. Additionally, each year, Technology Committee members present an array of workshops at the Celebration of Teaching & Learning Conference in New York City, sponsored by WNET.ORG to share the best in technology enriched educational practice *(http://thirteencelebration.org/)*.

Google Apps for Education

As districts face tighter budgets, teacher centers have partnered with Google to provide access and training on Google Apps for Education. Teacher centers and their associated BOCES will provide training to districts on how to implement Google in their environment and training to teachers on how to maximize learning, utilizing these free tools. Google Apps not only has the core tool sets used by schools, they are natively built to encourage collaboration and interaction between teachers and students in schools and across districts. This set of capabilities encourages the development of every student's 21st-century skills while mastering the core learning standards. Through this agreement, 697 public school districts and all non-public and charter schools will have access to Google Apps, ultimately reaching more than 3.1 million students throughout New York state. Each district has the opportunity to choose its own resources, and there is no cost for school districts to implement Google Apps in their classrooms. NYIT will develop the system of training certified trainers.

Compiled by Stan Silverman (Policy Board Chair, InterCounty Teacher Center; Director of Technology-Based Learning at NYIT), Maryann Augusta (Director, InterCounty Teacher Center, New York Partners for Technology Innovation) and Joseph Pesavento (President, Marlboro Faculty Association; Director, Mid-Hudson Teacher Center).

Defining
EXCELLENCE

NYSUT Principles for Taking the Lead in Defining Excellence in P–12 Education

Preamble:

Public education is the cornerstone upon which the growth and dissemination of new knowledge for the public good and American democracy are built. Public education is critical to an informed public, a vital economy, and an engaged society. NYSUT is committed to the development and delivery of a just and equitable quality education for every member of the diverse student population of the state of New York. Many individuals, communities and institutions — including NYSUT and its membership — have taken on significant roles in achieving the goal of successful schooling. Seven principles affirming NYSUT's policies form the basis for NYSUT's decisions, positions, and activities:

1. Only quality teachers should teach New York's learners. Quality teachers must be well prepared, supported with adequate resources, justly compensated, and fairly evaluated.

New York's teaching corps encompasses some of the finest, best educated and most diverse, caring and professional teachers working in the nation today. The high quality exemplified by our teachers represents the consequence of excellent teacher preparation, a rigorous certification process, active and supportive school leadership, fair compensation, and a variety of growth opportunities.

Teacher education in collegiate programs continues to be the foundational step in teacher development. Professional growth for all teachers should be extended and improved through induction, mentoring and professional development.

New York's commitment to hold teachers to fair teaching standards is undergirded by the comprehensive evaluation of teachers based on multiple measures of their performance and designed to promote teacher growth.

Teachers themselves are in the best position to continue the ongoing development of standards that reflect their real-world experience in a variety of settings and conditions.

2. Comprehensive instruction, programs and services must be provided in a safe, healthy and orderly learning environment to ensure that the "whole child" is educated.

New York's learners must be prepared for successful futures. They are unique, diverse, complex and creative social beings. They deserve a quality education that includes experiences with diverse cultures, the creative arts, technology, and career and technical skills. Mastery of core academic subjects is essential for all learners.

Safe, healthy and orderly learning environments are critical elements in the prescription for success for students, teachers and school-related professionals (SRPs) and students. Schools work best when they are appropriately staffed and instructional experiences are supported by a variety of services, such as health, nutrition, and mental health services provided

by appropriately licensed/certified personnel and other school-related professionals. Quality SRPs must be well prepared, supported with adequate resources, justly compensated, and fairly evaluated.

3. Quality school administration is characterized by appropriate and relevant preparation, professional collaboration and genuine accountability.

Skillful school administrators of the 21st century must recognize the critical role of culture, diversity and collaboration in order to succeed. School leaders must understand and be prepared to meet the needs of a diverse student population.

Administrators in our schools should possess not only vision and credibility, but also substantial and meaningful classroom experience, pedagogical know-how, and a commitment to community participation.

School administrators must meet state performance standards, demonstrate expertise and knowledge, and participate in ongoing, relevant professional development.

Working collaboratively with teachers, school administrators can expand the responsibility for and investment of the whole community in school change, diversity, and students' academic achievement.

4. The participation of practitioners as equal partners ensures the development of quality educational goals. Quality educational decisions may only be reached through established and respected agreements between labor and management.

When decision-makers plan and implement a public education agenda, no one speaks with more authority on matters of schooling than teachers and school-related professionals. Educators' long history of advocacy in our schools, community-building, and relationships with boards and policy-makers demonstrates an ongoing commitment to collaboration and school improvement.

Contractual relationships and collective bargaining establish stable and predictable mechanisms for effectively building mutual trust and communicating quality standards and solutions to educational challenges. These mechanisms empower representative teachers to ensure that teachers' views are heard and respected and that their working conditions are continuously improved.

Practitioners' participation ensures that their challenges, successes and experience in New York's classrooms will provide the most authoritative insider's perspective on what works and what changes can have the most impact on improving instruction.

NYSUT Principles for Taking the Lead in Defining Excellence in P–12 Education (cont'd)

5. Quality teaching and learning encompasses clear academic standards, well-developed curricula, skillful instruction, and fair and aligned assessments. Strategies to improve teaching and learning must be informed by student needs, professional judgment, and multiple sources of thoroughly analyzed data while affording teachers their professional autonomy.

Teachers know what has to be taught and how best to assess student learning.

The hallmarks of quality instruction are embodied in standards, curricula and reliable, fair assessments that have been formulated from the shared experiences of teachers and learners.

The content of instruction must be logically sequenced, reasonable in scope, and seamlessly integrated in a progression of knowledge, skills and abilities that lead to mastery, while affording practitioners the flexibility to foster critical thinking, creativity, and "teachable moments."

Data offer us many insights into how learners are progressing in school. Many types of data derived from multiple measures must be examined to provide an accurate and complete picture of student learning.

Teachers and school leaders need professional development, supports and expertise in order to effectively use data to make meaningful decisions and appropriate instructional changes.

6. Every member of the education community must share responsibility equally and be accountable for the quality of teaching and learning in our schools.

Shared accountability, decision-making, and responsibility will drive open communication, problem-solving and thoughtful planning.

Students must be accountable for their school performance, teachers for their instructional decisions, parents for their school involvement, and administrators, school board members, Regents, and legislators for their policies, processes, and resource decisions that support teaching and learning.

Professional development should be made available to all members of the education community to help them understand their responsibilities.

7. The local, state and federal governments must provide policies, programs, and funding to ensure that every student has access to a high-quality education.

Acting with foresight, transparency and responsibility, our state and local districts must work diligently to guarantee that all students — and especially those who have traditionally been disenfranchised, such as those with disabilities, English language learners (ELL), or those living in poverty — receive an adequately funded and comprehensive range of services and programs. In that effort, the resources of the federal government should level the playing field for states to serve disenfranchised students.

Defining EXCELLENCE

NYSUT Principles for Taking the Lead in Defining Excellence in Higher Education

Preamble:

NYSUT believes that higher education serves the public good by fostering learning, creativity and engagement. Higher education supports the values necessary for the development of democracy. It is essential for the social, cultural, and economic development of all people. Higher education institutions' ability to deliver quality education is, however, severely threatened by three troubling trends:

1) Public higher education institutions face a funding crisis brought on by the withdrawal of public funds by state and local governments

2) Colleges and universities have been forced to become over-reliant on contingent and part-time instructional staff and

3) Colleges' and universities' administrations have become increasingly corporatized, undermining shared governance.

To ensure that this public good is maintained and protected, NYSUT believes that its membership, the general public, and the government must be consistently invested in supporting higher education institutions and proactive in providing the necessary funding to provide a quality education. NYSUT recognizes that higher education is a public good and supports the faculty and professional staff who teach and guide our diverse student body. NYSUT's activities to support higher education are guided by and comport with seven guiding principles:

1. In the 21st century, higher education is essential for individual and societal well-being. A high school education is no longer adequate to prepare individuals for the challenges they face.

2. Access to higher education must be guaranteed to all students. It must be vigorously pursued, protected and equitably distributed.

The imperative of social justice and the changing and dynamic character of the national economy demand that we meet the challenges of growth and sustainability with a diverse and empowered workforce.

Educational opportunity is the gateway to individual and community success and prosperity. All students, regardless of ability, language of origin, socio-economic status, or other distinguishing characteristics must be afforded the opportunity to participate in higher education.

3. Public funding to support higher education across the disciplines and professions is essential. The erosion of public dollars must be halted.

The stable, broad-based development of a highly educated workforce will assure the role of New York's learners in the global economy in the 21st century. Federal and state fiscal resources must be mobilized to fortify and sustain this development.

The workforce will retain its depth and sustainability from an education that prepares learners to think and act technically, politically, socially and ethically.

The critical thinking that underlies innovation demands a population of workers broadly engaged in science, technology, engineering, mathematics and in the arts and sciences.

The cost of a quality education has outstripped the resources of most students; costs must be shared by the entire society, the ultimate beneficiary of high quality workforce development.

NYSUT Principles for Taking the Lead in Defining Excellence in Higher Education (cont'd)

4. The focus of higher education must be on meeting the needs of a dynamic and changing student body. Quality higher education goes beyond attaining a degree.

A quality education for the community of dynamic and diverse 21st century college students requires a complex array of academics, services, and social supports.

Students exist at the center of the higher education enterprise; their success is evidence of a community of educators who understand their complex needs and rise to meet the challenges these needs present.

In addition to strong instructional programs, students find academic support through services focused on skill remediation, alternative assessments, tutoring, accommodations, study skills, laboratory practice, technology support, career and academic counseling, and research and library skills.

Students thrive in environments in which they feel competent, safe, supported, and connected to community.

5. Quality higher education requires investment in a permanent full-time faculty and staff. Part-time faculty and graduate employees make essential contributions to higher education, but colleges and universities must cease relying on a corps of underpaid faculty with little or no job security for their core mission of instruction.

To meet the needs of a changing learner population, institutions of higher education must engage a corps of teaching and research professionals working in full-time, part-time and adjunct capacities. These roles and responsibilities must be strengthened, protected, and enforced by tenure systems, collective bargaining and contracts. The practices of shared governance — in which faculty play key roles in decision-making and planning — are critical to maintaining institutional integrity and growth.

Full-time faculty (minimally, 70% of the workforce) provide the stability essential to building a quality learning community and experience for students. Peer review ensures that the highest standards guide the activities of scholarship. Faculty and professional staff participation in the development of instructional accountability systems ensures that curricular decisions and policies are shaped and implemented by those best qualified to do so.

6. Higher education's fundamental work of teaching and research requires that faculty and professional staff engaged in these activities be protected by academic freedom. Shared governance, peer review and collective bargaining for all academic workers protect bedrock rights and enhance the quality of education for students. Faculty rights to academic freedom, peer review, collective bargaining and shared governance cannot be compromised; professional employees must be offered the necessary sphere of autonomous decision-making within which they can exercise their best professional judgment.

The freedom for students, faculty and professionals to engage in inquiry, discussion, publication, and scholarship is a critical element of the intellectual diversity essential in higher education. The pursuit of new knowledge must be underpinned by the right to question received knowledge, to advance unpopular opinions, and to suggest ideas without fear of repression. Faculty rights to academic freedom and professional autonomy must be strongly supported and vigilantly guarded.

7. The role of higher education in research and development must be supported with appropriate funding, resources and faculty.

Leveraging the scholarship of faculty and students engaged in research and development activities is a critical activity in higher education. The creative activities, basic and applied research, and scholarship developed in higher education settings stimulate the economy, attract investment and jobs, and drive innovation toward products and services that serve the public good.

Defining **EXCELLENCE**

Additional Resources

The **ISTE NETS** and **Performance Indicators for Teachers (NETS•T)**

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators. Teachers:

1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

- **a.** promote, support, and model creative and innovative thinking and inventiveness
- **b.** engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- **c.** promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- **d.** model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital-Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:

- **a.** design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
- **b.** develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- **c.** customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- **d.** provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital-Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

- **a.** demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- **b.** collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- **c.** communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats
- **d.** model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

### 4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

- **a.** advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- **b.** address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources
- **c.** promote and model digital etiquette and responsible social interactions related to the use of technology and information
- **d.** develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

- **a.** participate in local and global learning communities to explore creative applications of technology to improve student learning
- **b.** exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- **c.** evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- **d.** contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community
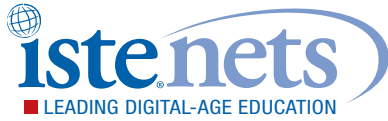
The **ISTE NETS** and **Performance Indicators for Students (NETS•S)**

1. **Creativity and Innovation**
   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:
   a. apply existing knowledge to generate new ideas, products, or processes
   b. create original works as a means of personal or group expression
   c. use models and simulations to explore complex systems and issues
   d. identify trends and forecast possibilities

2. **Communication and Collaboration**
   Students 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. Students:
   a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   b. communicate information and ideas effectively to multiple audiences using a variety of media and formats
   c. develop cultural understanding and global awareness by engaging with learners of other cultures
   d. contribute to project teams to produce original works or solve problems

3. **Research and Information Fluency**
   Students apply digital tools to gather, evaluate, and use information. Students:
   a. plan strategies to guide inquiry
   b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks
   d. process data and report results

4. **Critical Thinking, Problem Solving, and Decision Making**
   Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
   a. identify and define authentic problems and significant questions for investigation
   b. plan and manage activities to develop a solution or complete a project
   c. collect and analyze data to identify solutions and/or make informed decisions
   d. use multiple processes and diverse perspectives to explore alternative solutions

5. **Digital Citizenship**
   Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:
   a. advocate and practice safe, legal, and responsible use of information and technology
   b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
   c. demonstrate personal responsibility for lifelong learning
   d. exhibit leadership for digital citizenship

6. **Technology Operations and Concepts**
   Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
   a. understand and use technology systems
   b. select and use applications effectively and productively
   c. troubleshoot systems and applications
   d. transfer current knowledge to learning of new technologies