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Technology Plan 2010 - 2013

About this Document

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The Plan is broken up into 5 sections. Section 1: Discussion of vision and goals for the next 3 years; Section 2: Assessment of the districts current state of technology; Section 3: Presentation of strategies to achieve each goal and description of the evaluation process; Section 4: A three year projection of the type and amount of equipment, wiring, type and amount of software and online resources to be acquired to ensure successful implementation of goals and projected funding; Section 5: Appendices of documents and resources used in this plan.

The Technology Plan is a living document which is reviewed each year by the Technology Committee and renewed every three years reflecting new and changing goals for technology in the district.

The committee welcomes input from all stakeholders. All committee members are available by district e-mail from the Technology Committee web page at <http://www.brittonkill.k12.ny.us/techcom/>. Also, comments and suggestions can be submitted to the district superintendent's blog via the district's home page.

The technology plan, committee membership, contact information, minutes of meetings and other information of interest to staff and community are publicly posted on the Technology Committee's web page at <http://www.brittonkill.k12.ny.us/>.

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Section 1: Discussion of vision and goals for the next 3 years

The vision of the Brunswick Central School District Technology Committee, in partnership with the community, is to provide students with the knowledge, skills, and qualities required to be successful in a changing, diverse world.

The Brittonkill Central School District's Technology Committee supports ISTE's National Educational Technology Competencies for Students, Teachers, and Administrators (Appendices B, D, E). These standards define what students, teachers, and administrators should know and be able to do with technology to enhance learning.

At Brittonkill Central School District we have a strong hardware and software infrastructure already in place, and through the direction of the Technology Committee, we believe that we have a process in place which will maintain that infrastructure. However, despite the availability of a more than adequate network and infrastructure, we find that the technology is being under-utilized. Through our research we found this to be a common problem throughout New York State. In the 2005-2008 District Technology Plan of the Hilton Central School District, they reported the following about their District on pages 19 & 20: "We still see inconsistent instructional use of technology by teachers with students during the learning and teaching process. While there are instances of exemplary use of technology to support and enhance learning, there are still students who experience little or no use of technology in their classrooms, or who use technology only as a way to produce a summary project, and not as a learning tool. Teachers report that personal comfort levels with technology use, staff development opportunities, availability of reliable equipment, access to the necessary equipment, and the availability of instructional technology support staff all impact their use of technology in the classroom." These observations are nearly identical to what we are seeing at Brittonkill. To address these issues, the Technology Committee is recommending the following:

The goals of the Technology Committee for the period from 2010-2013 are to:

1. Maintain a level of excellence in hardware / software acquisition and support the current network.
2. Maintain a secure network.
3. Add capability to broadcast closed-circuit cable system throughout all district buildings.
4. Ensure technology equipment and content are accessible to all learners in all classrooms.
5. Provide anytime, anywhere learning through the District's website.
6. Improve all faculty and staff computer literacy competencies through first rate professional development.
7. Improve communication with parents/guardians.

Section 2: Assessment of the District's current state of technology

Minimum infrastructure and equipment per school:

As of the 2009-2010 school year:

- Every room in the District has broadband Internet connectivity.
- Nine of our classrooms have ceiling mounted LCD Projectors.
- There are eight LCD Projectors/multimedia carts available for classroom use (7 secondary, 1 elementary).
- The District has 30 large-screen monitors available which are capable of connecting directly to a computer for PowerPoint and other multi-media presentations.
- The District maintains six computer rooms (5 secondary, 1 elementary), banks of computers in each library, and one portable laptop lab (secondary).
- The District purchases the use of StarBase for Student Information Management from Questar III BOCES. (Note: district will be moving to a new robust student information management system).
- Every classroom has a Pentium IV computer with the 2003 Microsoft Suite of programs installed (Word, Access, Excel, PowerPoint, and FrontPage, and Outlook). Teachers also have 24/7 access to the Student Information System (StarBase) from their school or home computers.
- Each administrator has either a laptop or desktop computer (Pentium IV) accessible with the same features as teacher computers.
- Every 6-12 student in the District has a user account which allows them to on-site use of the Microsoft Suite of Programs with the exception of Microsoft Outlook. Students do not have access to email services while at school.
- All special education students and teachers have access to the program Kurzweil which is capable of supporting literacy skills. We have 10 concurrent user licenses for the Kurzweil Program.
- The district has subscriptions to several databases for research that are available to students both in school and at home.

Data on current utilization of technology by students, teachers, and administrators:

- At the elementary and secondary levels the computer rooms are being accessed at rates approaching 80% of total available time. At the secondary level, there are times of the day that 100% of the computer rooms are being used for instructional purposes. The scheduling and access to these rooms is maintained through Microsoft Outlook shared calendars.
- At the secondary level, the LCD Projector/Multimedia carts are being used 50% - 60% of the available time. This is based on data from the 2008-2009 online reservation system for the LCD Projector/Multimedia cart, a significant increase from the prior survey which showed usage at 10-20% of the time.
- On average, users log into United Streaming 80 times per month and stream an average of 259 videos each month.
- 106 members of the teaching faculty have created a webpage on the District's website. Approximately 42% actively update and maintain their website information on a more than monthly basis. At least 88% are using their website to enhance communication between home and school.

Current strategies for purchasing equipment, software, and online resources.

- The Technology Committee in coordination with building-level administrators review and make decisions based on teacher-generated requests for new and emerging technologies. Proposals for new items include the number of students to be impacted by the purchase and how that item will be integrated into the curriculum.
- When possible technology-related purchases adhere to the principles delineated by Universal Design for Learning. These principles include providing students with multiple means of representation, expression and engagement.

The district complies with the National Instructional Materials Accessibility Standard (NIMAS). NIMAS web site: <http://nimas.cast.org> .

Current Inventory of Technology Resources: as of January 2010

District Wide	Computer Rooms	Classrooms	Library	Office	Other
Computers / Laptops	168	165	35	52	30
Peripheral Devices					
Network Printers	10	9	2	14	1
Scanners	1	10	1	4	
Large Monitors		27	2		1
Digital Camera	3	5	1	3	2
Digital Video Camcorders		10			
Video Editing		10			
LCD Projectors	6	5			
DVD/VCR	6	10			
Smartboard	6				2
Software					
Server OS					15
Email Filter					180
Web Filter					site
Desktop Protection					<500 site
Anti-Virus					450
Backup					8
XP					450
MS Office					450
FrontPage					450
Adobe Master Suite					<500 site
Smart Notebook					site
Smart Ideas					Site
United Streaming					Site
Network Equipment					
Server					15
Firewall					2
Router					2
Switch					42
wireless access point					14
NAS/SAN					2
Rooms with Internet connectivity					all
Telecomm Links					
TW Fiber		1		1	
Cable					1

Current District Policies and Regulations

Description of local school system Acceptable Use and Internet Safety policies and how these policies are implemented and enforced in compliance with the Children's Internet Protection Act (CIPA).

Acceptable Use and Internet Safety

Elementary school students sign a class contract entitled "Computer Use Policy" (Appendix H). At each class's first session of the year in the computer classroom the teacher reviews the three principles of respect for the teachers, equipment and other people's work. Students sign the class contract which is prominently displayed in the computer classroom.

Secondary school students are given a two-part document when they enroll at Brunswick Central School District (Appendix H). The top half, entitled "Computer Network Rules and Code of Conduct," lists the rules for computer use and the consequences of violating the rules, and remains with the student. The bottom half is the "Student Agreement Form" which the student signs and dates, and is where the student designates their choice of password for access to the computer network. This signed agreement is forwarded to the IT staff that creates the student's account. The consequences of violating computer privileges is also listed in the student handbook which is given to all students in printed form and is also located online at our district web site: <http://www.brittonkill.k12.ny.us/>

The District has two policies regarding computer use. Brunswick C.S.D. Policy #5.240-00, entitled "Computer Network for Education," (also known as the "Computer Use Policy and Regulations") describes the District's commitment to computer technology as a learning tool, and lists procedures for proper use of the District's computer network system. It also includes guidelines for the community regarding donations of computer equipment. This document serves as the application form for non-student network accounts. A signed copy is maintained in the personnel files of faculty, staff and administrators.

Brunswick C.S.D. Policy "Internet Safety Policy," addresses appropriate and allowable access to the Internet and oversight of such use in the District.

District policies are available online at http://www.brittonkill.k12.ny.us/BOE/district_policies.asp.

Section 3: Presentation of strategies to achieve each goal and description of the evaluation process

Goal 1: Maintain a level of excellence in hardware / software acquisition and support the current network.

Realistic Strategies:

- Maintain current computer rotation cycle.
- Cap inventory numbers unless additional monies added to budget for hardware, software and technical support.
- Purchase three new video editing stations for the video production studio to replace older systems.
- Reallocate resources as determined by evaluation process.
- As numbers near 500 computers additional support will need to be added in order to maintain current level of support. This support will be provided through internships, part-time help and when budget allows adding a full-time technician.
- Upgrade desktops to Windows 2007 and Servers to MS Server 2008.
- Upgrade Business Office software to latest version compatible with Windows 7.

Evaluation Process:

- Look at computer use in all areas and determine if more or less computers needed.
- Evaluate on a bi-annual basis the requests of teachers and administrators and whether current software and hardware configurations can meet the needs.
- Evaluate tech response times to technical requests
- Survey faculty and staff on their need for additional technical support.

Goal 2: Maintain a secure network

Realistic Strategies:

- Review firewall, server and filter logs.
- Stay educated on emerging threats.
- Evaluate new technologies and their impact on security.

Evaluation Process:

- Audit firewall, server and filter logs

Goal 3: Add capability to broadcast closed-circuit cable system throughout all district buildings.

Realistic Strategies:

- Add / modify cabling where needed
- Add insertion point to broadcast on Ch. 2 in elementary.

Evaluation Process:

- Review cabling layout and needs

Goal 4: Ensure technology equipment and content are accessible to all learners in all classrooms.

Accessing technology is a key not only to student success in the classroom but also to achievement throughout life. Research has shown that technology can decrease absenteeism, lower dropout rate rates and motivate more students to continue on to college. (The Impact of Technology on Student Achievement 2002). Three principles for this are

- Presenting information in multiple formats and multiple media
- Offering students with multiple ways to express and demonstrate what they have learned
- Providing multiple entry points to engage student interest and motivate learning. (Rose and Meyer (2002)

Realistic Strategies:

- Increase awareness and provide professional development about Universal Design for Learning (UDL).
- Increase the number of large displays in classroom enabling students and teachers to present and discuss their work, including computer files, Internet sites, video, and cable resources, in a collaborative manner. This facilitates instruction with images that are large enough for all students to see and engages student attention.
- Increase the amount of interactive tools in every classroom, for example, interactive response tools, interactive pen displays and SmartBoards. Interactive tools address the needs of different learning styles and multiple intelligences in the classroom. Various interactive devices help to create student-centered classrooms where the teacher can move from the role of lecturer into learning coach or facilitator. They also motivate students to participate.

Evaluation Process:

- Survey faculty and staff on their understanding of Universal Design for Learning and tailor professional development offerings based on their response.
- Look at large display and interactive tool use in all areas and determine if more or less are needed.
- Evaluate on a bi-annual basis the requests of teachers and administrators and whether current number of displays and interactive tools are meeting the classroom needs.
- Research the different interactive tools available for classroom use to ensure district stays current with technology.

Goal 5: Provide anytime, anywhere learning through the District’s website.

The advancement of the concept of providing instruction beyond the boundaries of the classroom walls. We are encouraging the use of the Internet and multimedia technologies to deliver content. This will be done primarily through the District’s website. The infrastructure is already in place to allow this to happen; however, it will take a concerted effort at all levels to find ways to allow teachers the time to create materials that can be posted and shared on-line.

Realistic Strategies:

- Develop strategies and professional development opportunities for staff to post materials on-line for students to use.
- Further promote to the community the concept of anytime, anywhere learning.
- Begin developing ways to provide the materials to students with current technologies. For example templates for Power Point, Adobe Flash and streaming media to deliver online instruction and review.

Evaluation Process:

- Track usage and implementation of Internet and multimedia technologies to deliver content.
- Through district newsletters and mailings make community aware of online resources available on district website.
- Survey faculty, staff and students on use and need of specific templates and online resources.

Goal 6: Improve all faculty and staff computer literacy competencies through first rate professional development.

“Teachers cannot be expected to learn how to use educational technology in their teaching after a one-time workshop. Teachers need in-depth, sustained assistance not only in the use of technology but in their efforts to integrate technology into the curriculum.” (Kanaya & Light, 2005).

In order to impact student learning and achievement, professional development will be an on-going process that provides hands-on technology training and use within a variety of learning experiences with a supportive environment both during and after the professional development experience.

All faculty and staff have access and are expected to use technology in a variety of ways to communicate and educate our children, colleagues and community. Therefore, it is important to support on-going professional development as it pertains to staffs’ responsibilities and skill levels.

Realistic Strategies: The following strategies will be employed to provide on-going professional development depending on available funding:

Approximate Budget	Strategy
\$0	<ul style="list-style-type: none"> • Use state-aid hardware budget towards professional development • Investigate opportunities for grant money like NYS Learning Technology Grant • Structure opportunities for students to assist other students and teachers to integrate technology into the classroom using Service Learning funds. • Connect with other districts and see how they provide ongoing, continual technology professional development. • “Peer to Peer” training. Currently we are doing this on an informal basis. We could formalize the program and promote it to faculty. A challenge for this will be the tight teaching schedules anticipated in the next two years. • Members of the Technology Committee could become ‘experts’ in different programs and serve as a resource. • Technology and Computer Literacy Program leaders could offer workshops before/after/during school. • Video tutorials could be created to provide on-demand assistance right in the classroom. • Coordinate meetings between the Technology and Professional Development Committees to brainstorm and implement new opportunities. • New hires will be oriented to technologies in the district
\$5000.00 - \$20,000.00	<ul style="list-style-type: none"> • “Train the trainer” - Send one or two faculty and staff members to specific training to have them return to teach others in the district • Part-time position • Per diem consultant
\$35,000.00 -	<ul style="list-style-type: none"> • Full time dedicated educational technology specialist or Coordinator of Educational Technology position. (Appendix E)

Evaluation Process:

- Research and explore an assessment tool to ensure the professional development opportunities meet the needs of faculty and staff.
- Administer a survey tool for technology self-assessment of faculty and staff proficiency.
- Collect anecdotal information on increased use of technology
- Analyze data of computer room use, sign-out equipment use, technology request for software and hardware, tech requests and data from online subscription databases.

Goal 7: Improve communication with parents/guardians.**Realistic Strategies:**

- Implement new student management system including teacher and parent portal.
- Continue to distribute district newsletter.
- Continue to post information on district web site such as student work, projects, concerts, blogs and class assignments
- Continue to broadcast information on digital signage in main lobby.

Evaluation Process:

- Analyze use of parent portal after first year of implementation.
- Survey community on attitude towards amount of information available from district.
- Analyze data of district web site use.

Section 4: A three year projection of the type and amount of equipment, wiring, type and amount of software and online resources to be acquired to ensure successful implementation of goals and projected funding.

HARDWARE	Current Numbers	# to Purchase 2010-2011	# to Purchase 2011-2012	# to Purchase 2012-2013
Desktop Computers	450	45 + 4 w/grant money (Sect. 619ARRA)	50	50
Laptop Computers	22	2 + 2 w/grant money	2	2
Servers	9	1	1	1
Network Switch	42	1	1	1
NAS/SAN	4	0	0	1
Network Printers	9	1	1	1
Scanners	17	0	0	0
Large Monitors	25	25 w/grant money	4	4
Digital Camera	14 +6	2	2	2
Digital Video Camcorders	10+12	2	2	2
TV Broadcast Cameras	3	0	0	3
Video Editing Station	11	3	3	3
LCD Projection Systems	10	5 w/grant money	5 w/grant money	2
DVD/VCR/Blue Ray	15	5	5	5
Interactive Hardware	7	5 w/grant money (Sect.611ARRA)	5 w/grant money (Sect.611ARRA)	5
Wireless access points	14	9 w/grant money Sect 611ARRA)	2	2

SOFTWARE	Current Numbers	# to Purchase 2010-2011	# to Purchase 2011-2012	# to Purchase 2012-2013
Server OS	15	0	0	15
Email Filter	180	180	180	180
Web Filter	site	site	site	site
Desktop Protection	site	400	400	400
Anti-Virus	450	400	400	400
Backup	10	10	10	10
Desktop OS	450	200 + 45 on new computers	200 + 50 on new computers	0
MS Office	450	0	250	250
FrontPage	450	0	0	0
Smart Notebook	site	0	0	0
Smart Ideas	Site	Site	Site	Site
United Streaming	Site	Site	Site	Site

Projected Funding :

- Projected costs of wiring (and related electronics), equipment, software, online resources, and telecommunications services to be acquired and related expenses needed to implement the plan.

	Current Budget	2010 - 2011	2011 - 2012	2012 - 2013
Hardware (Computer Replacement)	\$42,000.00	\$50,000.00	\$50,000.00	\$50,000.00
State Aid Hardware	\$23,500.00	\$23,500.00	\$23,500.00	\$23,500.00
State Aid Software	\$20,500.00	\$20,500.00	\$20,500.00	\$20,500.00
Internet Connection	\$16,700.00	\$16,700.00	\$16,700.00	\$18,700.00
Network Support	\$20,000.00	\$25,000.00	\$30,500.00	\$35,000.00
United Streaming	\$3,500.00	\$3,500.00	\$4,000.00	\$4,500.00
Materials & Supplies	\$5,600.00	\$6,000.00	\$7,000.00	\$8000.00
Maintenance & Repairs	\$6,000.00	\$6,000.00	\$6,500.00	\$7000.00
Section 619 ARRA	\$5,900.00	\$5,900.00	\$0.00	\$0.00
Section 611 ARRA	\$68,000.00	\$30,000.00	\$0.00	\$0.00
Section 611 IDEA	\$8,000.00	\$8,000.00	\$8,000.00	\$8,000.00
Total	\$219,700.00	\$195,100.00	\$166,700.00	\$175,200.00

Section 5: Appendices of documents and resources used in this plan

Appendix A

**Definitions and Terminology of
Educational Technology and Technology Education**

International Technology Education Association (ITEA) Terms

<http://www.emsc.nysed.gov/technology/initiatives/definition.html>

Last Updated: May 4, 2009e

Technology — The innovation, change, or modification of the natural environment to satisfy perceived human needs and wants.

Educational (instructional) technology — 1. The study of computers and other media. 2. The use of technological developments, such as computers, audiovisual equipment, and mass media, as tools to enhance and optimize the teaching and learning environment in all school subjects, including technology education.

Technology education – A school subject specifically designed to help students develop technological literacy.

NYS Terms

MST Standard 5- Technology Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

C.R. 100.4 (a)(1) Technology education means a program of instruction designed to assist all students in meeting State intermediate standards for technology. Technology education uses concepts of science, mathematics, social science, and language arts in a hands-on, systems-based approach to problem solving that guides students in the understanding, design and development of systems, devices and products to serve human needs and wants.

Educational Technology & Technology Education

Educational Technology (Information Technology)	Technology Education (Technological Studies)
<input type="checkbox"/> Teaches with technology (uses technology as a tool)	<input type="checkbox"/> Teaches about technology as a content area
<input type="checkbox"/> Primarily concerned with the narrow spectrum of information and communication technologies	<input type="checkbox"/> Concerned with the broad spectrum of technology (How humans have designed & innovated the natural world)
<input type="checkbox"/> Primary goal: To enhance the teaching	<input type="checkbox"/> Primary goal: Technological literacy for

and learning process

everyone

Appendix B

The ISTE National Educational Technology Standards (NETS•S) and Performance Indicators for Students

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.

Appendix C

Profiles for Technology Literate Students National Educational Technology Standards for Students 2007

These profiles are based on ISTE's core belief that all students must have regular opportunities to use technology to develop skills that encourage personal productivity, creativity, critical thinking, and collaboration in the classroom and in daily life. Coupled with the standards, the profiles provide a set of examples for preparing students to be lifelong learners and contributing members of a global society.

Profile for Technology Literate Students Grades PK-2

The following experiences with technology and digital resources are examples of learning activities in which students might engage during PK–Grade 2 (ages 4–8):

1. Illustrate and communicate original ideas and stories using digital tools and media-rich resources. (1, 2)
2. Identify, research, and collect data on an environmental issue using digital resources and propose a developmentally appropriate solution. (1, 3, 4)
3. Engage in learning activities with learners from multiple cultures through e-mail and other electronic means. (2, 6)
4. In a collaborative work group, use a variety of technologies to produce a digital presentation or product in a curriculum area. (1, 2, 6)
5. Find and evaluate information related to a current or historical person or event using digital resources. (3)
6. Use simulations and graphical organizers to explore and depict patterns of growth such as the life cycles of plants and animals. (1, 3, 4)
7. Demonstrate the safe and cooperative use of technology. (5)
8. Independently apply digital tools and resources to address a variety of tasks and problems. (4, 6)
9. Communicate about technology using developmentally appropriate and accurate terminology. (6)
10. Demonstrate the ability to navigate in virtual environments such as electronic books, simulation software, and Web sites. (6)

Profile for Technology Literate Students Grades 3-5

The following experiences with technology and digital resources are examples of learning activities in which students might engage during Grades 3–5 (ages 8–11):

1. Produce a media-rich digital story about a significant local event based on first-person interviews. (1, 2, 3, 4)
2. Use digital-imaging technology to modify or create works of art for use in a digital presentation. (1, 2, 6)
3. Recognize bias in digital resources while researching an environmental issue with guidance from the teacher. (3, 4)
4. Select and apply digital tools to collect, organize, and analyze data to evaluate theories or test hypotheses. (3, 4, 6)
5. Identify and investigate a global issue and generate possible solutions using digital tools and resources. (3, 4)

6. Conduct science experiments using digital instruments and measurement devices. (4, 6)
7. Conceptualize, guide, and manage individual or group learning projects using digital planning tools with teacher support. (4, 6)
8. Practice injury prevention by applying a variety of ergonomic strategies when using technology. (5)
9. Debate the effect of existing and emerging technologies on individuals, society, and the global community. (5, 6)
10. Apply previous knowledge of digital technology operations to analyze and solve current hardware and software problems. (4, 6)

Profile for Technology Literate Students Grades 6-8

The following experiences with technology and digital resources are examples of learning activities in which students might engage during Grades 6–8 (ages 11–14):

1. Describe and illustrate a content-related concept or process using a model, simulation, or concept-mapping software. (1, 2)
2. Create original animations or videos documenting school, community, or local events. (1, 2, 6)
3. Gather data, examine patterns, and apply information for decision making using digital tools and resources. (1, 4)
4. Participate in a cooperative learning project in an online learning community. (2)
5. Evaluate digital resources to determine the credibility of the author and publisher and the timeliness and accuracy of the content. (3)
6. Employ data-collection technology such as probes, handheld devices, and geographic mapping systems to gather, view, analyze, and report results for content-related problems. (3, 4, 6)
7. Select and use the appropriate tools and digital resources to accomplish a variety of tasks and to solve problems. (3, 4, 6)
8. Use collaborative electronic authoring tools to explore common curriculum content from multicultural perspectives with other learners. (2, 3, 4, 5)
9. Integrate a variety of file types to create and illustrate a document or presentation. (1, 6)
10. Independently develop and apply strategies for identifying and solving routine hardware and software problems. (4, 6)

Profile for Technology Literate Students Grades 9-12

The following experiences with technology and digital resources are examples of learning activities in which students might engage during Grades 9–12 (ages 14–18):

1. Design, develop, and test a digital learning game to demonstrate knowledge and skills related to curriculum content. (1, 4)
2. Create and publish an online art gallery with examples and commentary that demonstrate an understanding of different historical periods, cultures, and countries. (1, 2)
3. Select digital tools or resources to use for a real-world task and justify the selection based on their efficiency and effectiveness. (3, 6)
4. Employ curriculum-specific simulations to practice critical-thinking processes. (1, 4)
5. Identify a complex global issue, develop a systematic plan of investigation, and present innovative sustainable solutions. (1, 2, 3, 4)

6. Analyze the capabilities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning, and career needs. (4, 5, 6)
7. Design a Web site that meets accessibility requirements. (1, 5)
8. Model legal and ethical behaviors when using information and technology by properly selecting, acquiring, and citing resources. (3, 5)
9. Create media-rich presentations for other students on the appropriate and ethical use of digital tools and resources. (1, 5)
10. Configure and troubleshoot hardware, software, and network systems to optimize their use for learning and productivity. (4, 6)

The numbers in parentheses after each item identify the standards (1–6) most closely linked to the activity described. Each activity may relate to one indicator, to multiple indicators, or to the overall standards referenced.

The categories are:

1. Creativity and Innovation
2. Communication and Collaboration
3. Research and Information Fluency
4. Critical Thinking, Problem Solving, and Decision Making
5. Digital Citizenship
6. Technology Operations and Concepts

Appendix D

The ISTE National Educational Technology Standards (NETS•T) and Performance Indicators for Teachers 2008

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 assessment 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.

2. 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 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.

3. 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.

Appendix E

The ISTE National Educational Technology Standards (NETS•A) and Performance Indicators for Administrators 2009

1. Visionary Leadership.

Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

Educational Administrators:

- a. inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
- b. engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
- c. advocate on local, state, and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

2. Digital-Age Learning Culture.

Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.

Educational Administrators:

- a. ensure instructional innovation focused on continuous improvement of digital-age learning
- b. model and promote the frequent and effective use of technology for learning
- c. provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
- d. ensure effective practice in the study of technology and its infusion across the curriculum
- e. promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration

3. Excellence in Professional Practice.

Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.

Educational Administrators:

- a. allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
- b. facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology
- c. promote and model effective communication and collaboration among stakeholders using digital-age tools
- d. stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

4. Systemic Improvement.

Educational Administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources.

Educational Administrators:

- a. lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources
- b. collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning
- c. recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals
- d. establish and leverage strategic partnerships to support systemic improvement
- e. establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning

5. Digital Citizenship.

Educational Administrators model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture.

Educational Administrators:

- a. ensure equitable access to appropriate digital tools and resources to meet the needs of all learners
- b. promote, model, and establish policies for safe, legal, and ethical use of digital information and technology
- c. promote and model responsible social interactions related to the use of technology and information
- d. model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools

Appendix F

Coordinator of Educational Technology Job Description

Objective

The objective of this position is to provide leadership and expertise for the integration of computer software, multi-media, and Internet resources into instruction.

Scope

The Coordinator of Educational Technology is responsible to the Director of Curriculum, Standards and Assessments and has dual roles of educational consultant and in-service trainer.

Responsibilities

1. Consults with district Technology Committee to implement the current three-year plan
 - Maintains state-of-the-art knowledge about educational technology applications (software, multi-media, Internet).
 - Develop plans for implementing present and emerging technology in the educational setting
 - Surveys students, staff, parents and community members regarding educational technology needs and competencies; shares survey results with district administration, collaborates with district administration on the means to meet educational technology needs and State Learning Standards
 - Coordinates district-wide educational technology activities to enhance efficiency and effectiveness
 - Researches, reviews, and evaluates software applications and makes recommendations for classroom implementation
 - Motivates teachers to use technology in instruction
 - Advises grade-level teachers/teams, academic department members, or curriculum review committees on educational technology applications
 - Maintains an inventory of educational software within the district

2. Develops and delivers district-wide in-service workshops to provide training for staff
 - Conducts in-service workshops
 - Contacts outside providers of in-service workshops to provide training for staff
 - Provides support to staff in the use of educational technology applications
 - Maintains records of participation and evaluation of staff in-service activities
 - Acts as a resource to the Staff Development Committee
 - Disseminates information to staff and administration regarding educational technology initiatives, training, software, etc.

Appendix G

Internet Safety Policy and Brunswick C.S.D. Internet Safety Policy Regulation; Student Acceptable Use Policy Forms; Computer Network for Education Policy and Brunswick C.S.D. Computer Network for Education Regulations

The above information can all be found on the district website at http://www.brittonkill.k12.ny.us/BOE/district_policies.asp.