Brunswick School Department

District

Technology Plan

Board Approved April 13, 2011

July 1, 2011 – July 1, 2014

Contents

Technology Committee Members

Brian Bouchard, Community Member

Brenda Clough School Board Member

Richard Ellis School Board Member

Sue Woodhams, Technology Systems Supervisor, Committee Chair

Gwen Christman, Elementary Technology Integrator

Matt Engstrom Systems Administrator

Jerry Cross, MLTI Technician, Brunswick Junior High School

Daniel Dearing, Secondary Technology Integrator

Jo Hipsher, Librarian, Brunswick High School

Sam Johnson, Student, Brunswick High School

Andrew Davis, Student, Brunswick High School

Betsy Mitchell, Librarian, Brunswick Junior High School

Maria Palopoli, Teacher, Brunswick Junior High School

Mary Gerber, Teacher, Coffin Elementary School

School Covered in the Plan

Brunswick High school

Brunswick Junior High School

Harriet Beecher Stowe Elementary School

Coffin Elementary School

1. Community and Parental Involvement:

Involve a broad representation of the school community in the planning process. Include a description of how the technology will be used effectively to promote community and parental involvement and increase communication with parents, including a description of how parents will be informed about the technology and its proper use.

The original district technology committee (1998) included students, teachers, administrators, parents, school board members, local business people, and representatives from Bowdoin College, Curtis Memorial Library, Vocational Region 10, and Merrymeeting Adult Education. The committee developed a vision for technology, an inventory of current resources, a needs assessment, and a plan for technology acquisition and training. The district updated the plan in 2003, 2008 and 2011 to reflect changing needs and to illustrate progress in the achievement of our goals to that date. The Brunswick Technology Committee will continue updating the plan every 3 years to reflect changing needs and goals.
The current technology committee is comprised of teachers, administrators, technology staff, school board representatives, students, and community members. This broad representation enhances communication and ensures a varied perspective as we develop and implement plans for the acquisition and use of technology.

- The district supports a widely used e-mail system to enhance internal communication with colleagues, and external communication with parents/guardians and community members. An individualized voicemail system tied into a Voice-Over Internet Protocol (VOIP), using our own fiber network, facilitates communication with teachers by parents/guardians who do not have e-mail access.

- The district website is used to post district information for employees, students, parents/guardians, and community members. It includes: School Board goals and plans, School Board polices, the district budget, curricula, employee and employment information, health and safety updates, staff development opportunities, and the state Report Card. The site also includes: the School Board's adopted policies for employee and student use of school computers and the Internet. These policies specify proper use of our computer technology and networks. Individual school websites include information about each school, calendars, newsletters, homework assignments, teacher blogs, podcasts, and contact information for teachers, administrators, and

support staff.

- A web-based student performance information system called “PASS” (Parental Access Support System) has been implemented at the high school level, with plans to make this system accessible for parents of junior high students within 2 years.

- The district uses local access cable TV for broadcasts of School Board meetings and presentations, as well as to broadcast “Inside BHS”, a monthly show highlighting various activities at the high school. To enhance public awareness, the high school web site includes a daily video podcast of daily school announcements and other school activities, and a link to the current edition of “Inside BHS”.

2. **Vision:**

   Establish a vision statement linking the tools of technology with areas such as curriculum content, instructional practices, professional development strategies, and enhanced services.

The fundamental goal of technology in the school program is to improve the quality of education. We advocate the seamless integration of technologies into the curricula as additional tools we can use to meet curricular objectives. Our initiatives to integrate technology will help stimulate intellectual curiosity and provide students with experiences that will help them develop a technical literacy to enable them to express ideas, enhance their abilities to perform in the classroom, and to serve as members of society. The Brunswick School Department will continue to evaluate and adopt emerging technologies to capitalize on educational benefits and improve communication among teachers, students, parents/guardians, and the community.

3. Goals:

Articulate specific goals, aligned with the Maine Learning Results, for using advanced technology to improve student academic achievement.

To achieve the vision described in the statement above, we must have the technological support necessary to meet the following goals:

- All students and the staff in Brunswick schools will be comfortable using technologies and software appropriate to their individual levels of learning.

- All students and staff will have equitable access to technology.

- All students and staff will have access to reliable technologies and where applicable, connectivity to networks, Internet, and storage space. Ongoing technical support should ensure that our technologies and

networks remain stable, efficient, and effective.

- Technologically, graduates will be well prepared to compete and perform effectively in higher education and/or job market environments.

- We will offer professional development opportunities.

- We will support all staff in the use of technology appropriate to their grade level, subject, or specialty area.

The *Maine Learning Results* establishes goals for student achievement. The Guiding Principles of the *Maine Learning Results* outline that students should be:

I. Clear and effective communicators
II. Self-directed and life-long learners
III. Creative and practical problem solvers
IV. Responsible and involved citizens

Achieving these goals requires that students:

I Be adept at using a variety of technologies and information resources to clearly and effectively communicate.

II & III Be successful, self-directed learners, who can function independently in a global environment that demands the use of information-technologies. They must possess the skills and abilities that will allow them to locate, access, critically evaluate, produce, and present, valid and reliable information in acceptable formats. Through instruction, and the use of various technologies, we will expose students to a variety of global information resources. Continued use of emerging technologies will encourage and drive expanded topic exploration, increased critical evaluation of sources, and creative thinking.

IV Grow increasingly responsible and involved to feel connected to their communities and their world. As students learn to use information technologies appropriately, their ability to connect with the world around them will increase. These learning experiences will further encourage students to engage in greater communication and research in the local and global environments.

4. Identify Necessary Technology:

Include a technology assessment. Gather information about technology currently in use so that what will be needed to meet new goals can be determined. Include a list of the equipment and telecommunication services that are necessary to reach the goals.

Our current inventory includes the following*:

Equipment Type	Quantity	Approx. age as of 6/11
Misc. laptops		
IBM R - 51 laptops	60	7
IBM R - 52 laptops	90	7
IBM R - 400 laptops	27	4
IBM S - 12 laptops	25	7
IBM T - 61 laptops	56	4
Asus Netbooks	127	2
Asus Netbooks	170	1
Apple i Macs BHS	48	3
Apple Macbooks BHS	164	3
Apple MacBooksBJH	523	3
Apple i books G4 BJH	80	6
Apple i books G3 BJH	30	9
Apple i books G3 Elementary	60	9
I Pods	28	3
Desktops Byte Speed	30	3
Desktops PRC Tech	25	5
Desktops NEX Link	30	1
Desktops Various	70	6-8
Desktops N-Computing	75	3-4
Laser Printers	50	1 to 8 years
Color Laser Printers	7	5-6
Digital Cameras	Numerous models	Various
Digital Video Cameras	10	Various
Interactive Whiteboards	36	1-6
Mimio Interactive Whiteboard	9	4-6
Video Projectors Ceil Mtd	20	1-4
Video Projectors Stand alone	32	Various

* based on latest inventory

Our software inventory includes licenses for the following:

Software Title	Quantity
Microsoft XP Professional	1 per PC and MacBook
Microsoft Office (XP Pro, 2003, 2007, MAC OS X, Mac 2004)	1426
Microsoft Front Page (single copies)	103
Microsoft SharePoint Designer	11
Open Office	many
Appleworks (incl MLTI iBooks)	many
Adobe Creative Suite	23
Adobe Acrobat	30
Adobe Photoshop 7.0 +	24
Adobe Video Editing Programs	2
Media Blender	100
Pixie	150
Lexia Early Reading	30
Lexia Phonics Based Reading	110
Lexia Strategies for Older Students	85
Advanced Learning A+	Unlim @ BHS & BJH
AutoCAD LE	20
Type to Learn	125
Inspiration	50
Kidspiration	75
Read 180	40

To achieve our goals, and maximize educational benefits for students and staff, we would like to be able to purchase the following equipment * over the next 3 years.

Equipment Type	Quantity	Replace/Purchase by:	New or Repl?
Instructional			
Desktop PCs	40	September 2011	Replacement
Laptop Computers	94	September 2011	Replacement
Video Projectors	2	September 2011	New
Ceiling Mounted Projectors	10	September 2001	New
Desktop PCs	40	September 2012	Replacement
Laptop Computers	100	September 2012	Replacement
Laser Printers	4	September 2012	Replacement
Video Projectors	2	September 2012	Replacement
Ceiling Mounted Projectors	10	September 2012	New
Interactive Whiteboards	6-8	September 2012	New
Misc. Cameras	Undec.	September 2012	New/Replacement
Desktop PCs	40	September 2013	replacement
Laptop Computers	100	September 2013	New/Replacement
Laser Printers	4	September 2013	Replacement
Video Projectors	5	September 2013	New/Replacement
Ceiling Mounted Projectors	10	September 2003	New
Interactive Whiteboards	Undec.	September 2013	New
Infrastructure			
Storage Server	2	September 2011	New
Storage Server	2	September 2012	Replacement
Storage Server	2	September 2013	Replacement
Back-up Storage Server	1	September 2012	New
Back-up Storage Server	1	September 2012	New
Back-up Storage Server	1	September 2013	New

* Types and numbers of equipment are estimates and may be altered based upon budget considerations

5. Collaboration with Adult Literacy Service Providers:

Describe how the program will be developed, where applicable, in collaboration with adult literacy service providers.

Brunswick and RSU 75 partner in the Merrymeeting Adult Education Program, which offers a variety of educational programs including: GED courses, academic courses, and community outreach programs. These programs provide opportunities for adults in the community to access and use technology available at Brunswick High School. We use Brunswick High School's computer labs for several of these classes.

- Through the high school and junior high school library websites, access to a number of electronic reference databases, including, but not limited to, the MARVEL! data bases funded by the state of Maine, is available. These resources are available to our students, staff, and the extended community.

- Historically, the Brunswick School Department has offered open computer lab time to the community, in addition to supporting specific adult education course offerings. As long as the community's current level of demand exists, we expect that these resources will continue to be made available for maximum community benefit.

- Students and teachers in the MerryMeeting Adult Education English as a Second Language (ESL) program, regularly use technology hardware and software resources in the schools to assist English Language Learners (ELL) with literacy education.

6. Strategies for Improving Academic Achievement and Teacher Effectiveness:

Describe how funds, specifically Ed Tech funds where applicable, will be used to improve academic achievement, including the technology literacy of all students attending schools served by the SAU; and describe how funds expended will improve the capacity of all teachers in schools served by the SAU to integrate technology effectively into curricula and instruction.

<u>Improving Academic Achievement</u>

- At the high school level, the learning center, designed for remedial and enrichment work, is staffed by a full-time teacher and is open before, during, and after school hours. It makes available to individual students, small groups, and classes, the *Anywhere Learning A+ Program,* which offers over 2,000 lessons that focus on improving academic

achievement in reading, writing, grammar, vocabulary, world history, American history, geography, real world math, algebra, trigonometry, chemistry, and physics.

- Students at the junior high level also have access to the *Anywhere A+ Learning Program* (6-8 level), used at the high school.

- At the junior high level, teachers use *Lexia,* and *Scholastic Reading Inventory*, and to support our literacy initiatives.

- At the elementary level, our students have access to the *Lexia* reading program which supports the development of student reading skills. The program focuses on phonemic awareness and phonics, promotion of fluency, vocabulary, and comprehension. This software helps students to master essential reading skills that result in improved academic performance.

- Our elementary students also have access to *Symphony Math*, a self-paced math skill-building program, produced by the company that developed *Lexia.* The program, which offers a full range of math skills for early elementary students, engages students with its ease of use, its graphics, and the way it encourages success. Remote access also provides additional skill development time while under the watchful eye of parents/guardians.

- Students in the Academically Talented Program have access to *ALEKS.* This is a web-based, artificially intelligent assessment / learning system program devoted to developing math skills.

- The district provides adaptive hardware and software programs for students with specialized learning needs to help them improve academically. Examples include *Zoom Text* for visually impaired students, *Boardmaker* for physically handicapped students, EFM transmitters for the audibly impaired, and a variety of other specialized hardware for students with unique needs.

- All classrooms in grades 1 through 5 will have an interactive whiteboard as of September 2011.

- Technology funds also support the purchase of digital still cameras, digital video cameras, scanners, document cameras and related software. Students use these resources for developing and producing portfolios for art, and other classes.

- Computers and related equipment are readily available for teachers. These tools facilitate the integration of technology literacy into the

curricula. A specific course required for high school graduation focuses on computer applications and technology literacy.

- Computers are provided to access online databases (including the state-funded *MARVEL!* resources), which are available locally and remotely via our school library sites. These provide students with a broad scope of electronic information sources supported by library personnel who are available to assist students with using these resources.

- All students in grades 7 and 8 are issued individual laptop computers. David L. Silvernail's research entitled Maine's Middle School Laptop Program: Creating Better Writers , indicates that implementation of this laptop program has contributed to the improvement of writing performance in this group of students.

- Grade 6 students at the junior high school have access to mobile laptop (Macbooks) carts in addition to two computer labs outfitted with PCs. This prepares them for movement to grade 7 where they are issued individual laptop computers.

Improving Teacher Effectiveness

- We provide and fund opportunities for teachers to participate in workshops, conferences, and other training programs. This encourages our educators to keep abreast of new technologies and assists in developing methods of integrating technology into curricula.

- Local, in-district training is available to teachers before and after school, during staff meetings, scheduled staff development time, and during the summer. Training focuses on using a variety of software programs to integrate technologies into the curricula.

- Experienced teachers serve as mentors who work directly with teachers new to the district, helping them to integrate the use of our technologies into their curricula.

- Teachers are required by administration to create a goal to integrate technologies to enhance student learning in their three year goal cycle.

- Full-time technology integrators are available to teachers at all grade levels for help with learning how to successfully incorporate the use of a variety of technologies into their curricula.

- During staff meetings, scheduled staff development time, and at district technology fairs, local teachers deliver information technology presentations to their colleagues.

7. Integration of Technology with Curricula, Instruction, and Assessment:

Describe how technology (including software and electronically delivered learning materials) will be integrated into curricula, instruction, and assessment and include a timeline for this integration.

To facilitate learning experiences, students, teachers, specialists, and educational technicians need immediate and constant access to a variety of technologies and information sources at various times and places during the school day.

- Summer Technology Workshops for staff are held to address the district's need for improving the integration of technology into the curricula. Examples include training for effective interactive whiteboard practices and individual teacher website development with WordPress.

- As technologies develop, we will phase out older information formats. Discovery Education Video Streaming is being introduced into the district.

- Technology software is integrated into curricula, instruction, and assessment. Examples include, but are not limited to, the following disciplines and grade levels.

    - English and language arts classes, social studies classes, science classes, art classes, foreign language classes, special education, and health classes incorporate the use of various word processing software for writing and editing essays, documents, stories, and research papers.

    - Special education classes, and English and language arts classes, use *Inspiration or Kidspiration* for developing concept webs and outlines.

    - Science classes utilize programs such as *Data Studio* to measure, record, and analyze scientific data.

    - Technology education classes use *CAD* software and *Data Studio* to develop architectural drawings, measure, record, and analyze construction data.
    - Art, photography, and graphics classes use *Adobe Photoshop Creative Suite CS4* to edit a variety of photographs, images,

artwork, and documents.

- Math classes use software on graphing calculators for graphing and solving mathematical equations and problems.

- A variety of classes use video production software such as *iMovie*, Photo Story or *Final Cut Pro* to create and edit skits and programs developed for class assignments.

- Individuals and groups pursuing personal or class research projects use a variety of electronic research databases (including the *MARVEL!* products) for locating information.
- Programs such as *PowerPoint* and *Excel* are used by teachers while instructing classes and by students in completing class assignments.

- Elementary music students use *Finale Notepad* to create original musical compositions and they visit the websites of famous orchestras to learn more about musical instruments.

- Elementary students have access to the *Lexia* for prescriptive assistance with reading skills and to the *Symphony Math* program for math instruction. Several other software packages are available for use in the labs or in classrooms. These include:

    - *Microsoft Office Suite* – writing, graphing, spreadsheets, multimedia presentations
    - *Type to Learn*
    - *Kidspiration* – web and graphic organization for writing
    - *Pixie*– written communication projects
    - *Media Blender* – multimedia presentation tool

- Throughout the school day, all students will have equitable access to a variety of computer types (multi-platform). Connectivity will be reliable to ensure that students have the necessary technological tools to use our network and/or the Internet to pursue their academic goals. (Ongoing)

- Educators will have the same reliable access and connectivity to allow them to facilitate learning experiences. (Ongoing)

- Digital formats require less storage space than print formats, while also providing the ability to save large quantities of information with greater accuracy and ease. We provide all students with adequate file storage for publishing, storage of work, assessment, and communication purposes. (Ongoing)

- To maximize the effectiveness of technology in student learning, we will compile, analyze, and respond, to staff and student feedback on the use of technology in the curricula. (Yearly)

- The Measures of Academic Progress (MAP) assessment used in grades 3-8 is a computerized adaptive assessment developed by the Northwest Evaluation Association (NWEA) that provides teachers with information needed to improve teaching and learning. Data from the Measures of Academic Progress can be used to assist in decision making at the classroom, school and district levels.

- The Student Information System (SIS) provides an avenue for compiling student assessment results for staff use, and for transmission to the State. (Ongoing)

- Subscriptions to web resources include Brain Pop, Quia and IXL.

8. Technology Type & Costs, and Coordination with Funding Resources:

Develop a step-by-step action plan, with timeline, that includes goals, activities, required hardware and software, costs, and funding sources. Describe the type and costs of technology to be acquired and how it fits within the current structure (use the list developed in the technology assessment in # 4, above.). Designate sources of funding, specifically Ed Tech funds, E-Rate funds, and funds from other Federal programs, and state and local sources that support technology acquisition and integration.

In striving for the highest level of technology integration, the goal of the Brunswick School Department is to provide the resources necessary to maintain classroom technology and the supporting infrastructure, while working within budget guidelines.

- To meet our goals, we will replace older equipment on a regular basis.

- To maximize our educational goals, we aim to be flexible with this replacement schedule to allow for the purchase of newer technologies as they become available and applicable to our goals.

- The following outlines the goals for the next 3+ years (based on current budget projections)

Goal:	Activity:	Hardware, Software or Training	Estimated Costs	Funding Source
2011-2012				
Communication				
	Maintain parent auto calling system	Annual renewal	$7,500	Local
Maintain & Improve Infrastructure				
	4 Smart-UPS RT 800 VA	Replacement of Battery Back-ups	$14,000	Local
	Sever	Replacement	$5,000	Local
	Maintain/Upgrade Internet connection, virus protection	Annual Maintenance	$25,000	Local
Equity of access				
	Replacement Mac laptops-6th grade	24 Replacement	$22,00	Local
	ELA Cart	27 Replacement	$ 16, 200	Local
	Check out Cart	27 Replacement/ Maintenance	$ 16,200	Local, Title II
	Teacher laptops	25 Replacement/ Maintenance	$ 23,000	Local
	R51	15 Replacement/ Maintenance	$9,000	Local
	Replace printers	4	$3,400	Local
	Student USB drives	350	$3,800	Local
Curricular Integration				
	Discovery Video	HBS School	$5,000	Local
	Summer Tech. Workshop	numerous sessions	$6,000	Local
	Tech. Conferences	Various	Varies	Local
	Ceiling mounted projectors	6	$ 12,000	Local

Continued

Goal:	Activity:	Hardware, Software or Training	Estimated Costs	Funding Source
	Software purchases for student & teacher use	Various	$13,000	Local
	Curricular software support	New or renewal licenses	$8,000	Local
	Document Camera	2 New	$1,000	Local
2012 - 2013				
Communication				
	Maintain parent auto calling system	Annual renewal	$7,500	Local
Maintain & Improve Infrastructure				
	Server	4 New server	$20,000	Local
	Maintain/Upgrade Internet connection, virus protection	Annual Maintenance	$30,000	Local
Equity of access				
	BJH Lab	26 Desktop PCs	$18,000	Local, Title II
	CAD Lab	22 Desktop PCs	$22,600	Local
	6th grade mac laptops	24 MacBooks	$22,000	Local
	Replace cart BHS	89 Laptop PCs	$96,000	Local
	Replacement of Teachers Desktops	20 PC	$12,000	Local
	Replace Netbooks	45 units	$22,500	Local
	Replace printers	4	$7,000	Local
	Student USB drives	350	$3,800	Local
Curricular Integration				
	Discovery Video	BJH	$5,000	Local

Continued

Goal:	Activity:	Hardware, Software or Training	Estimated Costs	Funding Source
	Summer workshops	3 - 5 day sessions	$11,000	Local
	Summer Web Integration Class	In house training	$2,500	Local
	Tech. Conferences	Various	varies	Local
	Software purchases & upgrades for student & teacher use	Various	$12,000	Local
	Curricular support equipment	Ceiling mounted projector and sound system	12,000	Local
	Document Cameras	12	$6,000	Local
	Curricular support equipment	Interactive White Board	$50,000	Local
	Curricular support equipment	Digital cameras, video cameras, etc	Varies	Local
	Curricular software support	New or renewal licenses	$19,700	Local
2013 - 2014				
Communication				
	Maintain parent auto calling system	Annual renewal	$7,500	Local
Maintain & Improve Infrastructure				
	Replace Servers	Blade Center	$35,000	Local
	Maintain/Upgrade Internet connection, virus protection	Annual Maintenance	$30,000	Local
	Upgrade E-Mail Server OS	Annual Maintenance	$6,000	Local

Continued

Equity of access				
	PhotoShop lab	22 Desktop PCs	$20,000	Local
	Foreign Lang Lab	26 desktop PCs	$2,000	Local
Goal:	Activity:	Hardware, Software or Training	Estimated Costs	Funding Source
	Laptop Replacement	100 Laptops	$100,000	Local
	Student USB drives	350	$3,800	Local
Curricular Integration				
	Ceiling mounted & other projectors (10)	6	$12,000	Local Title II
	Summer Web Integration Class	In house training	$2,500	Local
	Tech Conferences	Various	varies	Local
	software purchases & upgrades for student & teacher use	Various	$12,000	Local, EPS
2014 - 2015				
Expenditures for this period will follow along with the type and quantity of previous years. Specific items will vary depending on technology needs/changes and the life span of older equipment.				

9. Supporting Resources:

Describe the supporting resources such as services, software, other electronically delivered learning materials, and print resources that will be acquired to ensure successful and effective uses of technology.

The Brunswick School Department currently provides adequate technical support to meet our goals for the successful and effective use of technologies. Included in the technology support portion of our plan are the following:

Location	Position	Function	Funding Source
District Support	(1) Technology Systems Supervisor	50% staff and student tech. curriculum support, 50% technology admin support	Local
District	Network Administrator	Support all network functions	Local
District Support	District Technology Support Specialist	Infrastructure and staff/student level tech. support	Local
District Support	System Support Specialist and District Support	Server Infrastructure and staff/student level tech. support	Local
Brunswick High School	Technology Support Specialist and Network Administrator	Staff and student tech. support	EPS
Brunswick High School	Librarian	Information skills integration	Local
Brunswick Junior High School	Technology Support Specialist	Staff and student tech. support	EPS
Brunswick Junior High School	MLTI Repair Specialist	Staff and student tech. support for laptops	EPS
Brunswick Junior High School	Librarian	Information skills integration	Local
Elementary Schools	(1) Librarian per building	Information skills integration	Local
Technology Integrators	(1) Elementary and (1) Secondary Integrator	Direct staff and student technology curriculum support	EPS
Outsourced Support	Server support request	Infrastructure support	Local funds

- The school system has installed a district-wide VOIP telephone system giving all classrooms and offices instant access to voice mail. VOIP enhances internal communication between staff, and external communication with the parents/guardians of all students. This VOIP uses one of the six fiber-out pairs that run between each of our buildings.

- At the High School and Junior High, we have installed software and hardware programmed to automatically call parents/guardians to report absences, or to communicate other information at the discretion of the principal. We also provide an emergency calling system capable of calling all district students, parents/guardians, and staff (as needed) within minutes in the event of a school emergency or cancellation.

- We will continue to purchase software packages to support all students, including those who are unable to meet academic standards. Currently we have packages that range in scope from phonics instruction at the K-8 level, to complete academic courses in language arts, math, science, and social studies at the 6-12 level. These programs include: *Scholastic Reading Inventory, Lexia Early Reading, Lexia Phonics Based Reading, Lexia Strategies for Older Children and the Anywhere Learning (A+) System.*

- We will continue to evaluate and purchase, when applicable, adaptive technologies and specialized software to improve academic opportunities and performance. To broaden the academic experience, we currently have licenses for *AutoCAD, Adobe Photoshop, InDesign and InSight*.

- The principal goal of our school libraries is to support the curricula by providing appropriate print and electronic information sources. Students and staff at all grade levels currently have in-school and remote access to *World Book Online* and to the numerous online databases in *MARVEL! – Maine's Virtual Library*. In addition, students and staff at the junior and senior high schools have in-school and remote access to the following online research databases: Gale's *Student Resources in Context, Opposing Viewpoints in Context, Science in Context, US History in Context, World History in Context, Global Issues in Context, Health and Wellness Resource Center, Grolier Multimedia Encyclopedia, Lands and Peoples, and New Book of Popular Science.* Junior high students also have access to *Elibrary and American National Biography Online.* High school students also have access to *Animal and Plant Anatomy, World and Its Peoples, Gale Virtual Reference Library* (which includes multiple electronic books) and to many other ebooks, both from within our library catalog, and through the Maine Infonet Download Library project. Working within budget allotments, our libraries will continue to support technological initiatives by evaluating and

purchasing relevant electronic publications including: subscription databases, reference works, books, and periodicals for integration into the curricula.

- Additional electronic resources include subscriptions to Brain Pop, Enchanted Learning, Quia and Reading A-Z .

- High school students and staff have access to the Maine Infonet Download Library collection of audio books.

- During the current school year the high school began use of Discovery Education Video Streaming, a service that provides teachers and students with access to over 9,000 video programs and other resources that supplement the high school curricula.

- The district is currently in the process of contracting with Cengage Learning / Gale to convert our existing ninth grade geophysical science curriculum to a digital format using resources from the multiple Gale electronic research databases mentioned above.

10. Steps to Increase Accessibility:

Describe the steps being taken to ensure that all students and teachers have increased access to technology. The description must include how Ed Tech funds, if applicable, will be used to help students in high-poverty and high-needs schools, or in schools identified for improvement or corrective action under Section 1116 of Title I; and how the steps taken will ensure that teachers are prepared to integrate technology effectively into curricula and instruction.

The Brunswick School Board and administration have provided the leadership and financial support to ensure that all students have access to the technology necessary to meet the goals set forth in this plan. Technology access is provided through the following:

- Each elementary school has a computer lab.

- Each elementary school classroom has a minimum of one computer for use by the teacher and students.

- Elementary school teachers and students have access to laptop carts for mobile computing needs outside of the lab setting, and to older laptops that are used as fixed computers in classrooms as mini-labs.

- The Junior High School has the MLTI assigned laptops for 7th and 8th graders at least through the 2012 – 2013 school year. Teachers in grades 7-12 each have a laptop computer provided by the MLTI program.

- Sixth grade teachers and students at the Junior High also have access to laptops stored on mobile carts. Additionally, each 6th grade teacher has access to a desktop computer in his/her room.

- Junior high teachers and students have two labs with desktop PCs for all classes to use.

- The junior high school library houses only 9 computers for staff and student use. To better meet the demands of the junior high users, we will increase the number of library computers in the next 2 years.

- The high school has fixed desktop labs dedicated to several applications. These include a graphics lab, a computer applications lab, CAD lab, a learning lab, Foreign Language lab, Music lab and a general-purpose lab.

- At the high school, four mobile carts are available general use by any class or teacher. Additional laptops stored on carts, are assigned to the following departmental areas: English (21carts providing a total of 27 laptops), Social Studies (2 carts providing a total of 53 laptops), Science (1 cart with 27 laptops), Art (1 cart with 20 laptops), PE/Health (1 carts providing a total of 27 laptops), and Foreign Language (1 carts providing a total of 27 laptops). Each of the departments has a networked laser printer and computer projector to use with the mobile laptop carts

- The high school library has 25 desktop computers and 14 laptops available for use in the library, plus a few laptop computers that both students and teachers may sign out for overnight or long-term projects. Some laptops are available for year long loan to students who do not have computers at home.

- Each teacher has a desktop or laptop computer in his/her room for professional or class use.

- Brunswick employs two technology integrators whose job it is to work with staff to facilitate the integration of technology into curricula. Training that addresses the need for technology integration is available, and is scheduled by individual schools to meet specific needs, and by the district to meet global needs. We will continue to provide additional training based on recognized needs and feedback obtained from staff and student surveys. More information is available in Section 12: Professional Development.

- The School Department provides many forms of adaptive technologies for students with severe handicaps, visual impairment, and learning disabilities. We work closely with community support organizations to improve access for impaired students.

- Future studies of the effectiveness of our technology implementation in district schools must also be made to determine the cost effectiveness of purchased technology, and to provide constant quality improvements to the delivery of technology within our schools. These future studies will help shape lifecycle management goals for technology infrastructure design, and the efficacy of future technology purchases.

- We have increased the number and use of Interactive Boards with ceiling mounted or stand-alone projectors in all of the schools. These are now used extensively at the Junior High by science, language arts, math, and social studies teachers. All first through fifth grade classrooms will have interactive boards as of September 2011. As funds allow, we will continue to increase the number of these units in our secondary schools, while remaining cognizant of emerging technologies that might enhance learning experiences. We will make internal system and hardware changes to meet increasing needs for the storage of digital works and as we implement subscription based video streaming. To take advantage of available technology, we will increase staff training opportunities. Additional sessions will be available after school hours and through expanded summer courses.

- The district will investigate the possibility of providing e-mail accounts for all Junior High and High School students

11. Promotion of Various Curricula and Teacher Strategies that Integrate Technology:

Describe how various curricula and teaching strategies that integrate technology effectively into the general curriculum and instruction will be identified based on a review of relevant research and promoted to lead to improvements in student academic achievement.

The Administration has made a significant effort to involve the District Technology Committee, all building principals, and key building technology users, in the process of promoting the integration of technology into curricula. The following identification steps will be taken:

- Effective teaching strategies will be identified through communication with other educators and considered for implementation in our district.

- Effective teaching strategies will be identified through the analysis of student productivity, student motivation, and student ability to successfully incorporate multiple modes of learning into everyday class work.

- Student and staff technology surveys will be evaluated to help improve ways we use technology for curricular integration.

- Through discussions, summer technology workshops, and a review of the literature, educators will determine what components will be measured objectively to identify successful integration of technology in the curricula.

- Educators will keep abreast of current trends in the integration of technology by reading and discussing the print and electronic journals available in our schools and elsewhere. Teaching plans that have the potential to be effective will be discussed among colleagues, tested, implemented, evaluated, and adjusted with a view to improved academic performance of students.

- Subject to funding availability we will send educators to national conferences that focus on the integration of technology into the curricula.

- Staff members trained in the uses of the Interactive Whiteboard will offer support to other teachers through after school or summer workshops and by establishing grade level user groups to encourage the sharing of ideas for best use practices with the Interactive White Board technology.

- Schools will be encouraged to make the sharing of ideas a regular part of their scheduled faculty meetings.

- The district technology staff will continue to provide a digital newsletter that includes technology tips and integration ideas.

- Educators will continue to attend MLTI workshops and ACTEM conferences.

12. **Professional Development:**

Describe how ongoing, sustained professional development for teachers, principals, administrators, and school library media personnel will be provided to further the effective use of technology in the classroom and library media center.

The Brunswick School Department offers a variety of professional development opportunities for its staff. District technology integrators, technology support staff, technology committee members, teachers, and school librarians, conduct the sessions.

Examples of staff professional development:

- Two full-time technology integrators work with teachers and students at all levels to integrate the use of technology into established curricula.
- Technology support staff work one on one with educators teaching them how to use their computers.

- School librarians train teachers in the use of electronic resources, and a wide array of multi-media equipment.

- Technology committees in each building set goals and help to define workshop needs. Staff technology surveys are evaluated to help with these decisions and building level workshops have been established to help meet defined needs.

Courses and workshops are also available for school staff.

- The technology department offers Interactive Whiteboard training in the summer and thorough the school year.

- We offer web page design training. Staff can then create and update web pages on the district websites.

- School Library staff have the opportunity to participate in online training related to library service through Web Junction Courses through the Maine State Library.

- Staff training on the effective use of the MLTI laptops and the included software is ongoing throughout the school year. Building, district, and state support staff, offer these sessions.

- Many educators participate in webinars or online courses.

In the future:

- We will continue to offer training for our administrators and new staff members before the start of each school year.

- Given the success of technology leadership workshops, we will continue to develop more workshops, sessions, and opportunities.

- We will continue to request that the School Board designate a minimum of one professional development day during the school year to the integration of technology into the curricula.

- To encourage the sharing of successful technology related lesson plans, we will ask principals to take an active role in technology integration by devoting a portion of staff meeting time to the presentation by staff members of relevant lesson plans.
- We will provide adequate professional development time and funding for librarians and library assistants to attend sessions pertaining to updates of our library automation program for our district.

- We will continue to offer summer technology courses that provide re-certification credits.

13. Innovative Delivery Strategies:

Describe how the development and use of innovative strategies for the delivery of specialized or rigorous courses and curricula through the use of technology, including distance-learning technologies, will be encouraged, particularly in areas that would not otherwise have access to such courses or curricula due to geographical distances or insufficient resources.

We participate in programs that use technology to extend learning experiences beyond the confines of the physical classroom, to a diverse array of learning environments around the world. Some of these programs, or courses of instruction, currently include: *EarthKam, Skype, Service Learning Program, and WebQuests*. Additionally, there are examples of classroom-to-classroom links that expand learning opportunities. Each program aims at stimulating the curiosity and creativity of students. This leads students to develop their own ideas, and broaden their academic experiences, while enhancing their spirit of "connectedness" with the world. The district employs two technology integrators, one for grades K – 5, and the other for grades 6 – 12. They assist teachers with integrating technology and help students with special projects. Some high school students take classes at Bowdoin College and a number of teachers are working on graduate degrees using distance education programs.

- Brunswick and RSU 75 task force members are investigating the possibility of joint online classes.

- To provide specialized learning opportunities for students, we hope to expand our use of video streaming following our pilot project (2010-2011) at Brunswick High School.

- Brunswick High School is piloting a digital curriculum in a science course. Data will be collected to evaluate the effectiveness of the format.

14. Accountability measures:

Describe the process and accountability measures which will be used to evaluate the extent to which the plan activities are effective in integrating technology into curriculum and instruction, increasing the ability of teachers to teach, and enabling students to reach Maine's Learning Results.

Objective and subjective data will be collected and analyzed for accountability purposes.

- We regularly gather data from staff and students through surveys. These focus on professional development, instructional practices, assessment practices, and level/ease of access to technology.

- School librarians gather objective data by tracking use of research databases such as the Gale Databases. This allows assessment of the level of internal and remote use by students and staff.

- We track bandwidth usage to provide information on actual use of the technology infrastructure in order to provide data points for future bandwidth expansion.

Peripheral accountability data points may also be drawn indirectly from NWEA and MEA results when tests are administered on computers (the relationship between individual adeptness with technology and test scores can only be inferred when compared to other similar benchmark tests that are not computer based). To help achieve this goal, and to find out the level of effectiveness of our technology:

- We use diagnostic software to measure student use and achievement at various levels.

    - Elementary

        - *Lexia Phonics Based Reading and Strategies for Older Students*
        - *NWEA*

    - Junior High School

        - *Lexia Phonics Based Reading and Strategies for Older Students*
        - *NWEA*
        - *Advanced Learning (A+) System*

    - High School

        - *Advanced Learning (A+) System*
        - *NWEA*

- We measure the frequency of student and teacher use of mobile and fixed computer labs at all levels.

- We measure access to electronic databases by middle and high school students and staff.

- We measure requests by students and staff for innovative technologies such as scientific probes, computer attached microscopes, interactive whiteboards, tablet PCs, handhelds, digital portable document cameras, and digital video equipment.

- We measure student and staff usage of teacher developed web sites for curricular integration.

- Staff and student surveys will be implemented in the next three year cycle to provide feedback on technology use and needs in the district.