Shutesbury Elementary School
Technology Plan
2010-2015

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School:	Shutesbury Elementary School
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Shutesbury Technology Plan 2010-2015

Table of Contents:

Executive Summary

Shutesbury Elementary School (SES) serves preschool and elementary age children in the town of Shutesbury. Incorporated in 1761, the rural Town of Shutesbury is located in Franklin County and encompasses 27.18 sq miles with a population of 1,800. As the only school in town, SES is the focal point for accommodating 150 children from Pre-Kindergarten to Grade 6.

Vision and Mission Statement

Mission, Vision, and General Technology Goals

> ***Shutesbury Elementary School is a dynamic learning community. Its mission is to lay foundations in the many critical areas of our children's education. We strive to nurture each child's curiosity, growth, and development, and to foster a lifelong love of learning.***
>
> ***(Shutesbury Elementary Mission Statement)***

Shutesbury Elementary School values the development of the whole child. We strive to cultivate a lifelong love of learning, while nurturing intellectual curiosity, academic growth, and aesthetic sensibility. Guiding values at the school underscore the importance of community. We want our children to become caring, respectful, and ethical citizens. We foster the development of critical thinking because our youngsters should become wise decision-makers capable of independent thought and rational problem solving. We frame instruction around student-centered teaching practices in a physically and emotionally safe environment to give all children the confidence they need to take on new challenges and responsibilities. We encourage quality work and meaningful achievement, so that everyone can experience the powerful sense of accomplishment that comes from caring deeply and working hard.

Charged with teaching our students to access, manipulate, and analyze information in greater depth than ever before, Shutesbury Elementary administrators, teachers, paraprofessionals, and parents strongly support the integration of technology with our core curricula to deepen and enrich learning. We focus on digital tools that facilitate effective organization, exploration, and communication to equip learners with the skills they need to manage the information they confront on a daily basis.

Technology makes learning more relevant in an information age. It enhances and extends classroom teaching, enabling students to access and apply information effectively across an extensive range of subject areas. Assistive technology helps teachers customize instruction to meet diverse learning needs thereby, enhancing student access to the curriculum.

All students at the school benefit from increased availability of flexible technology supports for reading, writing, research, science, social studies and math. Integrating technology tools allows us to extend the pool of flexible instructional opportunities available for learning success. For example, evidence from teacher assessments indicates that the quality and quantity of student

writing improves across the learning spectrum when students use computers for writing. Full functioning portable technology, text-to-speech screen readers, word predictors, and graphic organizers allow students to produce better work than possible with just paper and pencil. They spend less time handwriting multiple drafts and more time revising their work to elaborate and organize ideas.

Visual learners who struggle with organizational issues benefit from brainstorming with concept mapping software. Learners, who experience difficulties with fine motor coordination, spelling, note-taking or handwriting, appreciate how technology tools give them more time to focus on ideas. Advanced students, quick to master concepts presented in class can use the self-paced, semi-autonomous instructional design of subject-specific software to attain higher levels of academic achievement. At Shutesbury Elementary, technology tools support educational practice, motivate learning, and facilitate assistive intervention.

We believe it is crucial to ensure that our students, teachers, and paraprofessionals have every opportunity to use technology to enhance the learning environment and improve administrative efficiency.

Introduction

The SES technology program has grown steadily over the past two decades and its success is directly attributed to:

1. Established local/district priorities, guided by a timeline for implementation and a realistic fiscal plan
2. Implemented a system for ongoing evaluation and program improvement that:
    a. Maintained current status of district technology
    b. Gathered input from the school community
    c. Incorporated regular review of software, hardware, network infrastructure and professional development needs
3. Targeted technology to support project-based learning
4. Improved recordkeeping and promoted data-driven decision-making
5. Utilized technology to address individualized education needs

The progression of steps that have enabled technology use at SES is summarized below:

1980 Purchased standalone Apple IIs with software programs that supported reading, math, keyboarding and desktop publication

1994 Building renovation project included internal network wiring and funding for classroom computers and network equipment

1997 Established first 5-year technology plan

2000-2001 Worked to integrate technology into the core curriculum;
Established school website presence; automated or upgraded administrative systems including: library management, special education, student administration

2002-2005 State grants supported technology professional development, curriculum integration and computers to create the Grade 5/6 mini-lab;
Used local funds and eRATE dollars to install T1-line and wireless airport;
Upgraded server, workstations and student information systems; Utilized online subscription to extend math enrichment opportunities

2006 Implemented school-wide email and teacher workstations;
Converted Library circulation system to browser-based application;
Acquired iPODs to enable audio book access, piloted teacher created Web 2.0-based projects

2007 Expanded integration activities to include student generated projects; entered into an Apple lease program to establish a 3-year replacement cycle; implemented an electronic school health system; consolidated student administration records into a Union-wide database.

2008 Enabled email archiving; provided data retention and public record training; conducted weekly technology professional development; redesigned the school website; further expanded student generated projects using video slideshows, avatars, podcasts and video conferencing.

2009 Installed Smartboards and Senteo Response systems; enabled public access port, implemented teacher-managed classroom blogs; continued to build access to technology resources; implemented assistive technology programs; hired a full-time library teacher and acquired access to Massachusetts Regional Library System databases; purchased portable equipment for Special Education staff.

Technology Accomplishments 2007-2010

As noted in the above summary, achievements in technology access, professional development, curriculum integration and communication were substantial over the past several years. Upgrades to a core switch, primary domain server, firewall and the installation of wireless ports increased accessibility and public access to some locations around the building. The school's enrollment in an Apple Lease program marked a commitment to establish an ongoing equipment replacement cycle. SES coordinated purchases with other union schools to maximize purchasing power and capitalize on the establishment of in-house technical support.

The implementation of weekly professional development coupled with the acquisition of classroom tools, yielded monumental progress in the area of curriculum integration. Weekly "TechTime" staff meetings offered a full range of topics from basics to classroom blogs. Nearly every classroom teacher was given one teacher station and an option for student computers. Grades 4 and 5 were furnished with mounted Smartboards, and a third portable board was purchased for use by all grades. In addition, PTO funds provided digital cameras to all grade levels.

Classroom projects are too numerous to list but the following is a sampling of highlights from the past year:

a) Kindergarten utilized interactive Smartboard lessons to teach sequencing, letter/sound recognition and a unit on the human body.
b) Grade 1 created a storytelling voice thread and frequently streamed videos to expand their social studies.
c) Grade 2 students used online databases for research and summarized their findings in a multimedia powerpoint.
d) Grade 3 also used video streams to deepen their science study and created podcasts/video recordings of Reader's Theatre.
e) Grade 4 utilized wiki technology to share book reflections and used the classroom smartboard daily.
f) Grade 5 posted research on Mexico using the class wiki, Mexipedia, and regularly used the smartboard and Senteo response units for whole group assessment.
g) Grade 6 students produced several multimedia projects including: a health public service announcement, economics commercial and a world geography travel brochure.

In addition to using technology for instruction, various administrative programs were established to improve collaboration, communication and streamline processes. To support the vital recordkeeping requirements of the school health office, SES implemented the comprehensive Healthmaster Nursing program. In September 2009, Power Lunch was established to manage food services recordkeeping and reporting needs. The school website was redesigned using a content management system (CMS) to distribute publication responsibilities. Email archiving functionality was also established in adherence to data retention guidelines.

TECHNOLOGY GOALS 2010-2015

Clearly, these accomplishments are directly attributed to administrative/staff support, a commitment to funding, professional development, curriculum resources and ongoing school/community communication. To effectively define goals for the next five years, this plan will establish action items that address these areas:

1. Network/Technology Access – Maintain or add new technology to ensure that system accessibility is preserved with emerging technologies. Critical success factors include:
    a. Technology Budget
    b. Technical/Instructional Support
    c. Hardware and software upgrade/replacement plan
2. Professional Development - Provide high quality professional development for all staff to promote effective administrative and instructional use. Critical success factors include:
    a. Identify staff technology competencies
    b. Define professional development approach
    c. Action plan
3. Curriculum - Continue to align our technology program with the MA DOE recommended instructional technology standards and explore new ways in which technology can be integrated into the curriculum. Critical success factors include:
    a. Formalize SES technology scope and sequence
    b. Identify resources to make learning accessible for all students and establish a method to effectively disseminate this information to all staff
4. Communication - Utilize technology to facilitate school/community partnership by ensuring timely, comprehensive information via:
    a. School website
    b. Email
    c. Voicemail

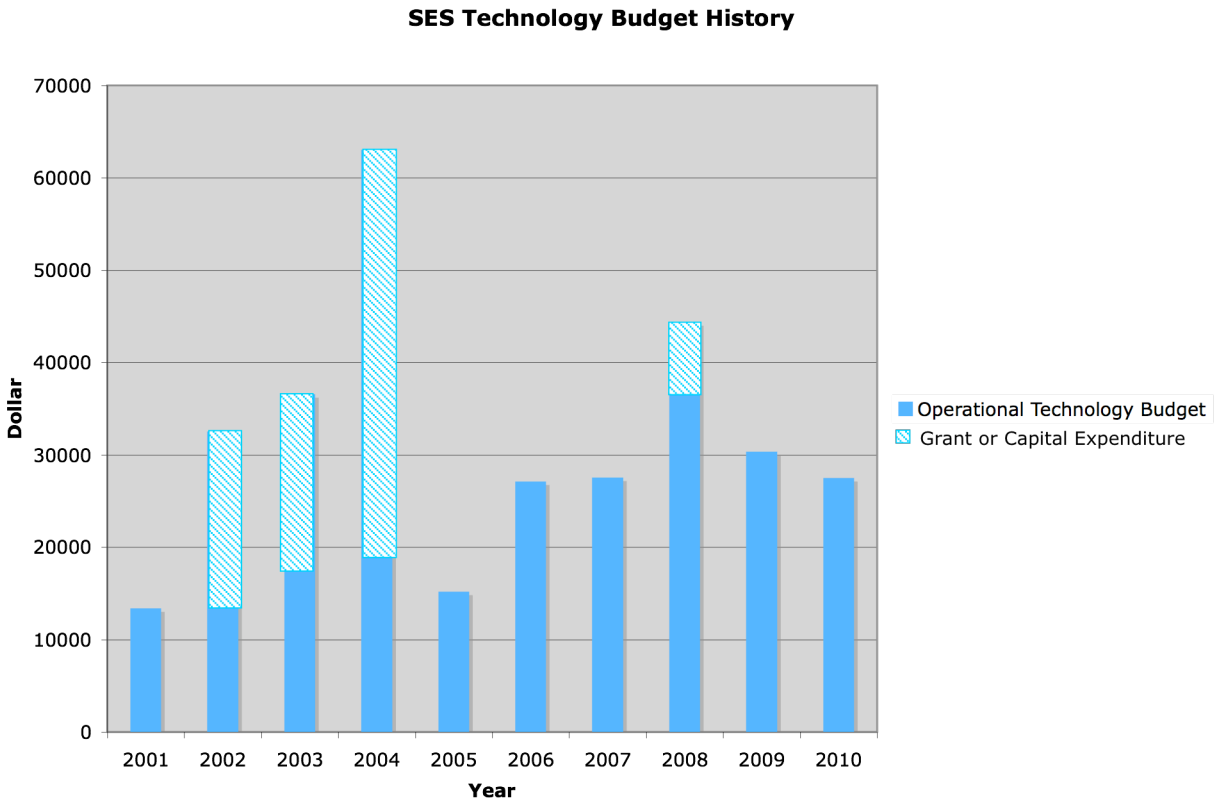
NETWORK/TECHNOLOGY ACCESS

Presently at SES, the ratio of students per Type A computer is 8.00 (compared to 7.91 in 2007) and the ratio of students per Type A/B computer is 3.64 (compared to 3.11 in 2007). The current infrastructure is adequate at this time given the recent updates to our core equipment. Our goal is to maintain the student-computer ratio by continuing to add/replace equipment as technology changes. Additionally, we will seek to acquire portable or handheld electronic devices as a means of extending accessibility.

Technology Budget

SES has actively sought federal, state and local funding to enable technology initiatives. In FY02, FY03 and FY04 the school successfully acquired state competitive grant funds to support technology integration projects. This year, the DESE has decided to distribute *all* funds as competitive grants instead of distributing 50% as entitlement and 50% as competitive. This welcomed change will broaden Shutesbury's opportunity for eligibility. For the past 12 years, Shutesbury Elementary School has received E-Rate funding to procure telecommunications, Internet and web hosting services. The portion of expenditures not covered by E-Rate discounts is financed by local funds.

As demonstrated through history, SES is committed to funding technology. The following graph shows that the local operational technology budget averaged $30,735 over the past 4 years (2007 – 2010) compared to the previous average of $16,734 (2003 – 2006). It is also clear that technology funding has begun to decline along with reductions in the overall school budget. In order to maintain or sustain positive growth, it is imperative that external grant funding sources be acquired.



Technical/Instructional Support

Staffing for the technology program at Shutesbury Elementary consists of one FTE Technology Coordinator/Computer Teacher whose responsibilities include: troubleshooting and maintenance, K-6 computer instruction, curriculum integration, professional development and state data warehouse reporting. At SES, we are committed to providing timely technical/instructional support to minimize disruptions to curriculum delivery. The ability to fulfill this goal is greatly enhanced by the coordinated work of the Library Teacher and Technology Coordinator. Over the past several years, substantial cross training opportunities have evolved thus, enabling greater tech support services and implementation of many integrated library/technology projects. In addition, Shutesbury is fortunate to have a well-versed technology savvy resident base that graciously offers a breadth of knowledge ranging from hardware troubleshooting to web development and instructional software design expertise. External technical support is available from corporate vendors such as Apple Education and Crocker Communications or other technology coordinators within Union 28.

Technology Inventory and Upgrade/Replacement Cycle

The technology coordinator keeps an updated inventory of school hardware and software. She ensures that all maintenance agreements with technology vendors are renewed and stays alert to infrastructure needs.

Adequate availability of computer hardware and software is essential for successful implementation. New system software and updated computer applications constantly add features that require more computing power.

Technology is a dynamic environment rapidly changing with the introduction of new tools to access and manage the ever-expanding world of information. System requirements change in relation to changes in educational needs and technological literacy. In order to maintain acceptable levels of computing, SES replaces equipment based on the following priorities:

1. Mission critical applications
    a. Primary network servers and equipment related to infrastructure
    b. School-level administration systems (student admin, email, web hosting)
2. Instructional objectives
    a. Individual Education Program requirements
    b. Student computer access ratio (lab and classroom)
    c. Software requirements driven by instructional goals
3. Administrative processing requirements such as
    a. Staff workstation and office automation tools
    b. Library CIR/CAT system
    c. Data reporting/assessment systems

The replacement cycle begins by evaluating equipment older than 5 years and replaces machines in order of priority. If equipment remains in working order and continues to provide instructional value, new computer purchases will improve the computer-to-student ratio. The current operational budget includes funds to replace up to 12% of the current inventory (which is equivalent to nine machines).

To sustain the continued progress in the area of technology access, the following actions items are proposed:

Activity	Timeframe
Seek external grant funding	Ongoing
Maintain Apple lease program	Spring 2011
Evaluate cost effective technology options (eg. iPAD, iPOD, etc.)	Spring 2011
Evaluate alternate software solutions for standard suite of tools (eg. iLIFE, open office, etc.)	Spring 2011
Evaluate assistive technology/universal design tools	Ongoing

PROFESSIONAL DEVELOPMENT

Staff Technology Goals

In keeping with the ISTE National Educational Technology Standards (NETS) and Performance Indicators for teachers, specialists and paraprofessionals (**http://cnets.iste.org/teachers/t_stands.html**) SES believes that educators at the school should be prepared to meet the following technology standards and performance indicators:

- Demonstrate a sound understanding of technology operations and concepts
- Use technology to enhance productivity and professional practice
- Understand the social, ethical, legal, and human issues surrounding the use of technology in PK–6 schools and apply that understanding in practice
- Plan and design effective learning environments and experiences supported by technology.
- Implement curriculum plans that include methods and strategies for applying technology to maximize student learning.
- Apply technology to facilitate a variety of effective assessment and evaluation strategies

Professional Development (PD) History

Initial technology professional opportunities were offered annually. In 2002-03, four technology workshops were offered with at least 50% of the staff benefiting from hands-on presentations. In 2003-04, a mini-workshop on Windows XP was conducted with informal, one-on-one instruction provided weekly. In 2004-05 two full-day technology professional development workshops were offered during the school year and three full-day workshops during the summer. Approximately 30-40% of the staff participated in one or more trainings. The majority of staff benefited from informal, one-on-one training. In Fall 2006, basic email training was conducted for all staff. Annual presentations on internet use and cyberbullying are also offered. Past efforts were successful in providing introductory courses on basic concepts and productivity tools. However, under this model changes in staffing dictate the need to offer these courses again.

Professional Development Approach

After evaluating other models and considering the needs of SES staff, we believe that professional development should center on specific curriculum projects in order to sustain effective integration. By designing staff technology PD around curriculum projects, we anticipate complete integration and believe that the critical issues identified by the North Central Regional Educational Laboratory (NCREL **http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te1000.htm**) will be addressed.

Due to the school's small size, customization of training is possible. By personalizing staff instruction on a project-by-project basis, we can better ensure that the conditions required for systemic change are in place. We believe that technology professional development must be *relevant, timely, authentic* and *useable*. Technology must be relevant to the task of teaching and beneficial to student learning. Training must be provided in a timely fashion to allow staff sufficient time to establish skills in order to successfully integrate it into instruction. Technology must supplement curriculum objectives and not be the goal. Technology tools must be accessible and support must be available to the classroom.

To further facilitate technology integration across disciplines, staff training will incorporate:

1. Concepts of universal design
   a) Utilize technology strategies in assessment and evaluation, and
   b) Demonstrate ways to harness technology to improve personal productivity and optimize professional practice.

The goal to promote staff technology use to improve student learning requires effective training and support. We expect to sustain technology support and professional development to staff following the mentoring model that works so well at our school. However, as the demand on educators' time continues to soar, coordinated staff availability for training becomes more of a challenge. In addition, technology knowledge varies greatly among staff. Hence, to achieve our professional development goals, alternate delivery methods of training will be investigated. Webcasts and online training options may help to fulfill individualized learning needs.

Needs Assessment

In April 2010 we conducted a staff assessment based on the competencies identified in the ***Massachusetts Technology Self-Assessment Tool*** (**http://www.doe.mass.edu/edtech/standards/sa_tool.html**). The data was collected using an online survey. The results indicate that approximately 83% of our teachers feel comfortable using productivity tools for professional practice and 91% are comfortable using the Internet for retrieving relevant information. Nearly 60% are comfortable with using digital equipment to publish pictures on their blog or newsletter. The area where most teachers request support is in technology integration.

To accomplish our goals, the following criteria will guide professional development:

PD Strategy	**Timeframe**
Weekly TechTime meetings	Ongoing
Union-wide PD	Fall 2010, Spring 2011
Union-wide Job-alike	Quarterly
PD Topics	
MoreWeb 2.0 tools	Ongoing
Assistive technology tools/Universal design	Ongoing
Communication and collaboration tools	Ongoing
Develop repository for organizing resources and ensuring staff accessibility	Ongoing

CURRICLULUM

Technology Curriculum Goals

Technology-based learning activities integrated with classroom curriculum can transform learning and help students work more efficiently. Technology also has the power to motivate interest and deliver instructional support. In our efforts to foster higher-order thinking and reinforce inquiry-based learning, we will continue to strengthen and develop our technology curriculum to align with content standards set by the state for all subject areas across grade levels.

With the ***Massachusetts Recommended Pre-K-12 Instructional Technology Standards*** as our guide, the technology program at the school will enable students to:

1. Demonstrate proficiency in the use of computers and understand the of concepts underlying hardware software and connectivity (***Standard 1***)
2. Demonstrate responsible use of technology and have an understanding of ethics and safety issues in using electronic media (***Standard 2***)
3. Demonstrate the ability to use technology for research, problem-solving, and communication (***Standard 3***)

Background

Technology education at Shutesbury Elementary provides instruction in word processing, spreadsheet operations, electronic presentations, file management, keyboarding, and Internet research. Students also learn about the social, ethical, and legal issues surrounding the use of technology (including copyright, plagiarism, and personal safety in cyberspace). They are taught how to search for information, evaluate credibility and check multiple sources to ensure accuracy.

Curriculum Next Steps

Often curriculum and assessment culminate in the production of a project or product. After some reflection and observation, it is apparent that emphasis must be placed on the process in conjunction with the product. Higher order thinking skills including synthesis, reasoning, and evaluation should be articulated in the work.

Over the past several years most of the computer/library projects have been extensions of the classroom curriculum. The computer curriculum is embedded within the context of grade level content. Today we find that most students come to school with prior computer experience and often possess rudimentary skills in word processing, file management and internet access. In many cases, computer class serves as a review or refinement of existing skills. Therefore, more emphasis needs to be placed on information processing and critical thinking skills. Likewise, technology curriculum should continue to explore new technologies and resources to support diversified learning styles. It should look to incorporate assistive technology, interactive technology, communications and other delivery systems that promote teaching and learning.

A proposed timeline for these activities follows:

Task	**Timeframe**
Tech curriculum scope and sequence	2010-2011
Mastery skill rubrics	2011
Research options for lesson plan repository	Summer 2011
Research and expand technology resources	Ongoing

Communication

The school website is updated weekly and provides notification for upcoming events and general school information. In 2008-09 the site was rebuilt using a content management system to enable shared publication responsibilities. Work is still needed to adequately populate the site and is likely to be an ongoing, work in-progress.

As indicated earlier, school wide email was implemented in 2006. It is presently limited to staff access-only. Electronic pen pals, Skype video conferences and blog/wiki publication projects currently remain under the supervision of teachers.

In 2006-07, the phone system upgrade provided intercom/paging features as well as voice mail. Feedback from the community indicates that all three methods of communication are fully utilized to enhance the home-to-school partnership.

Access Outside of the School Day

Students in our AfterSchool program have access to the computer lab for educational play and homework. All children who request permission to use the internet may do so as long as a signed Internet Use Agreement form is on file. Access to the internet is only permitted with adult supervision.

Evaluation

This plan is subject to annual review and revision to reflect changes in infrastructure, internet access, and instructional delivery. Each year, technology plans reported to the DESE includes: annual goals and accomplishments, changes in connectivity and access, staff professional development. Ongoing feedback is always welcome and we invite comments from all stakeholders including: staff, students and the community.