

Canton Public Schools
District Technology Plan
FY2008-2011

Technology Department

Robin R. Billing
Director of Curriculum, Instruction & Technology

Mike Wentland
Network Administrator

Canice Thynne
Technology Integration Specialist

Jim Duncan
CHS Technology Specialist

Colleen McCarthy
Technology Integration Specialist

Mike Barucci
GMS/Hansen Technology Specialist

Donna Hapenny
GMS Computer Teacher

Terry Malloy
Luce/JFK Technology Specialist

John O'Sullivan
GMS Computer Teacher

Julieann Kemp
CHS Computer Teacher

Technology Plan Overview

The District Technology Plan continues to serve as an important blueprint/road map for technology growth and development in the Canton Public Schools and is aligned with the District Strategic Plan. The integration of technology to support teaching and learning across the curriculum has been a stated goal in the District Strategic Plan since 2002. Despite budget cuts over the years, the community remains committed to supporting technology in the schools. The teaching and administrative staff views technology as an integral part of the educational process. The technology staff is fully invested in providing the support necessary to successfully integrate technology into all aspects of school operations.

Our two main guiding principles are to provide technology support at each building and Central Office and to increase the integration of technology to support standards-based curriculum and instruction.

We are fortunate to have a highly skilled staff in place and look forward to continued growth and development in the use and application of technology to support all aspects of school operations in the Canton Public Schools.

Mission Statement

We strive to integrate technology into the classroom to enhance teaching and learning, to promote independence and confidence among our users, and to prepare students for success with technology beyond the classroom.

Goal Areas for FY 2008-2011

- Technology Integration & Literacy/Staffing
- Technology Professional Development
- Accessibility of Technology
 - Hardware/Software
 - Internet Access
 - Networking
 - Access to the Internet Outside the School Day
 - Staffing
- Security Systems
- Technology Funding
- E-Learning and Communications

Needs Assessment

The Director of Curriculum, Instruction & Technology confers with all stakeholders regarding the technology products and services that will be needed to improve teaching and learning. Stakeholders include teachers, members of the technology department, building principals, middle school department advisors, high school department coordinators, K-12 wellness, visual and performing arts coordinators, librarians, computer teachers, and special needs department.

Acceptable Use Policy (AUP)

The district has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.

Evaluation

The district utilizes a team approach to evaluate the effectiveness of technology resources toward attainment of educational goals on an ongoing basis throughout the year. An annual review of the Technology Plan by the Technology Committee takes place to review goals and accomplishments and to revise the plan as needed.

Technology Integration & Literacy/Staffing

Benchmark 2

Technology Integration and Literacy

A. Technology Integration¹

1. Outside Teaching Time – As reported on a recent teacher survey (December 2007), 86.1% of teachers use technology every day, including some of the following areas: lesson planning, administrative tasks, communications, and collaboration. Teachers share information about technology uses with their colleagues.
2. For Teaching and Learning - As reported on a recent teacher survey (December 2007), 27.9% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data interpretation, communications, and collaboration.
3. Two of the three elementary schools have a computer lab that was updated in 2007. Teachers bring their classes to the lab independently and also receive support from the Technology Integration Specialist. In September 2009, one elementary school was outfitted with two wireless laptop/netbook carts, as the computer lab in that building had to be dismantled and turned into a special needs classroom. The Technology Integration Specialist has provided training and support in the use of the wireless carts. Teachers also use a variety of tools to integrate technology in their classrooms, e.g. presentation systems, document cameras, interactive devices, computers as learning stations, streaming video, etc.
4. Each subject area department at the High School has their own dedicated lab, which teachers use for a variety of curriculum integration projects. At the Middle School, the English and Science departments have dedicated labs. Currently, the Math, Social Studies and Foreign Language departments share lab space with English and Science departments, the Library and one of the Computer (Technology) labs. Teachers also use a variety of tools to integrate technology in their classrooms, e.g. presentation systems, interactive devices, laptops, streaming video, etc.
5. With the passage of a budget override in Spring 2008, the FY2009 operating budget provided funding for the restoration of a full-time Technology Integration Specialist who provides support to Middle and High School staff. In September 2009, the Technology Integration Specialist serving three elementary schools was increased from .5 to .6 FTE.
6. During the 2008-09 school year, a number of new technologies were incorporated at the secondary level:
 - The MS Math Department was equipped with SMARTBOARD technology in all of their classrooms as the result of a pilot project with SMART Technologies. Teachers received training and support from an outside consultant (Valley Communications) and the Technology Integration Specialist as part of the pilot project. Continued support for the integration of this interactive technology into the MS mathematics curriculum is ongoing.

¹ The Massachusetts Department of Education defines technology integration as the daily use of technology in classrooms, libraries, and labs to improve student learning.

- A state of the art SANS-PICCO Foreign Language Lab was installed at the High School. Training and ongoing support for the integration of the lab into all foreign language classes is being coordinated by the HS Foreign Language Department Coordinator.
- Four wireless iMac Mobile Digital Music workstations were installed, configured and deployed in the HS Music Department.
- The HS CAD lab was reinstated with upgraded PCs and software.

B. Technology Literacy

1. As reported on the most recent teacher survey (December 2007), only 39% of teachers are familiar with the Massachusetts Recommended K-12 Technology Literacy Standards. For the 39% of teachers who responded, 25% indicated that 76-100% of eighth grade students show proficiency in all or nearly all of the standards for grade 8.
2. With the passage of a budget override in Spring 2008, the FY2009 operating budget provided funding for the restoration of a .6 Computer Teacher at the Middle School. Currently, there are 1.6 Computer Teachers who see over 700 sixth, seventh and eighth grade students during the course of the school year (one day out of a six day cycle) for a total of 30 days per year. The additional .6 Computer Teacher enabled the Middle School to reduce class sizes in all computer classes, which will enhance learning. The MS Computer curriculum is well articulated and provides students with skill development in a variety of applications (word processing, spreadsheets, database) as well as research skills. Where possible, skills are applied to curriculum-based projects that reinforce core content areas. One critical skill that is still not addressed due to lack of scheduling and lack of instructional time, however, is keyboarding. Keyboarding was eliminated from the Middle School curriculum in 2002 due to staff cuts.
3. With the passage of a budget override in Spring 2008, the FY2009 operating budget provided funding for the restoration of a part time CAD Teacher to the Science Department at the High School, which allowed the HS to offer a Computer Aided Design course in 2008-09. As a result of the loss of a 1 FTE Computer Teacher at the High School in 2007, there is currently only 1 FTE Computer Teacher remaining in the Technology Department. As a result of reduced staffing, only three out of seven elective courses were offered in 2007-08: Accounting (full year), Computer Applications (1/2 year), and Personal Finance (1/2 year). The courses that were not offered were: Desktop Publishing, Entrepreneurship, PC Maintenance & Repair, and Web Design. During 2008-09, the HS again offered Computer Applications, Web Design, Personal Finance and Entrepreneurship. Students must take one Technology Course in order to graduate from Canton High School. With reduced staffing and the resulting reduction in course offerings, the opportunity to develop technology literacy at the high school level remains greatly diminished.
4. As reported on the most recent teacher survey (December 2007), 70.2% of teachers rate their own technology skills as proficient or advanced.

C. Staffing

1. Due to budget constraints, the full time Director of Technology position was eliminated in September 2006 and was merged with the Director of Curriculum position. Currently, district technology leadership is provided by the Director of Curriculum, Instruction &

Technology with assistance from the Network Administrator who has assumed additional responsibilities.

2. The district currently has 2.6 FTE Computer teachers, 1.6 at the Middle School and 1.0 at the High School. In addition, there is a part time CAD Teacher at the HS. The district currently has 1.6 Technology Integration Specialists who provide K-12 support at five schools.
3. Data management (SIMS reporting) for the district is coordinated by a school secretary who is stipended. EPIMS reporting is coordinated by the Business Office at this time. There is no full time data manager for the district.

GOALS

1. Provide support for the integration of technology to enhance student learning via new technology tools, e.g. document cameras, wireless laptops and interactive devices.
2. To ensure greater equity in technology literacy development at the elementary level, develop a document outlining key technology competencies for students in grades 1-5 based on the *MA Recommended K-12 Technology Literacy Standards*. Use this document as a basis for technology integration focus areas at each grade level in addition to individual teacher requests.
3. Investigate how keyboarding skills may be developed at the upper elementary level and/or Middle School on a consistent basis.
4. Review Middle and High School computer curriculum and course offerings in relation to the new *MA Recommended K-12 Technology Literacy Standards*. Revise MS curriculum and HS course offerings as needed in order to address key competencies.
5. Maintain funding for 1 FTE Technology Integration Specialist to provide continued curriculum support and training for teachers at the middle and high school levels; as funding allows, increase elementary Technology Integration Specialist position from .6 to 1 FTE.
6. Promote the use of web-based software and online tools to enhance student learning; support teachers in the integration of Web 2.0 tools.

Technology Professional Development

Benchmark 3

Technology Professional Development

- A. As reported on the most recent teacher survey (December 2007), teachers participated in an average of 20.8 hours of *formal* technology professional development during 2006-07. 29% of the teachers responding to the survey reported taking 36+ hours. 50.7% reported that the topics covered included computer applications; 76.7% reported focusing on integrating technology into the curriculum in a variety of subject areas. In addition, 51.2% of the teachers reported receiving *informal* technology professional development through coaching, modeling, and hands-on support from department heads, teaching colleagues, technology support and integration specialists.
- B. Technology professional development is sustained and ongoing. The Technology Department offers professional development opportunities in a variety of ways:

1. All new staff members are trained in using the network, *FirstClass* email and conference system, IT and Maintenance Direct, *GradeQuick*, and Discovery Education *streaming*.
 2. Training workshops for teachers and staff members are provided during full and early release professional development days scheduled during the school year as needed to support curriculum and departmental needs.
 3. Technology integration, webpage design and application specific workshops and courses are offered after school as scheduling and funding permit.
 4. Small group and individual instruction is provided to teachers as well as in-class modeling of lessons utilizing technology with students.
 5. District training in *Rediker* Student Information Management System, *DataWarehouse* data analysis software, MUNIS, and other applications are organized as needed.
- C. Professional development planning includes an assessment of district and teachers' needs based on the competencies listed in the Massachusetts Technology Self-Assessment Tool.²

GOALS

1. Provide annual training for all new staff in district applications/programs, e.g. *FirstClass*, *Rediker*, *GradeQuick*, *Discovery Education Streaming*, etc.
2. Provide after school technology courses and/or workshops in webpage design, curriculum integration, and use of new technology tools; use grant funds where available.
3. Provide ongoing training in Web 2.0 tools to promote collaborative learning opportunities for both students and staff
4. Provide embedded professional development through the work of the Technology Integration Specialists.
5. Provide training at elementary, middle and high schools during professional development days as requested to support curriculum integration.
6. Provide training to district staff as needed to support information management systems.
7. Provide training as needed on using *Data Warehouse* to generate and analyze MCAS data.
8. Conduct a comprehensive needs assessment of staff training needs based on the competencies listed in the Massachusetts Technology Self-Assessment Tool.³

² Details are available on the Department's web site (http://www.doe.mass.edu/edtech/standards/sa_tool.html).

**Accessibility of Technology
(Hardware/Software, Internet Access, Networking,
Access to the Internet Outside the School Day, Staffing)**

Benchmark 4
Accessibility of Technology

A. Hardware Access

1. Based on the new DESE computer classification system, the district currently has 0% of its students using high-capacity⁴ (Type A) Internet-connected computers. The Technology Department reviews the capacity of all computers on an annual basis.
2. The district provides limited student access to portable and/or handheld electronic devices. Currently, each elementary school has a cart of portable word processors.
3. In September 2009, one elementary school was outfitted with two wireless laptop/netbook carts, as the computer lab in that building had to be dismantled and turned into a special needs classroom.
4. In 2008-09, a number of new technologies were incorporated at the MS and HS levels (refer to Benchmark 2: Technology Integration).
5. The district maximizes access to the general education curriculum for all students, including students with disabilities, using technology in classrooms with universal design principles and assistive technology devices.
6. In the fall of 2007, the Technology Department instituted a new district-wide procurement policy for all technology purchases in order to standardize the technology tools being utilized district-wide and to ensure the most favorable pricing when new purchases are made.
7. The district provides classroom access to devices such as digital projectors and electronic whiteboards at all levels – elementary, middle and high school. There are digital projectors at all schools, and each high school classroom has a projection system. There are a limited number of mobile interactive devices at each level.
8. The district has established a computer replacement cycle of three-five years, which is funded through the Capital Plan.

B. Internet Access

1. The district provides connectivity to the Internet in all classrooms in all schools including wireless connectivity, where available.
2. The district provides bandwidth of at least 10/100/1 GB to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 GB.

⁴ The Department defines a high-capacity computer as a computer that has at least 1GB RAM and either a Pentium 4 processor or a Macintosh G4 processor (or equivalent). The Department also refers to these as Type A computers.

C. Networking (LAN/WAN)

1. The district provides a minimum 100 Mb Cat 5 switched network and 802.11b/g/n wireless network in available areas.
2. The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing.
3. A cohesive plan is in place to manage and maintain our infrastructure, and also upgrade as necessary. The Network Administrator keeps the Director of Curriculum, Instruction & Technology informed on a regular basis.
4. During FY 2008-2009, the network of the Canton Public Schools has undergone a tremendous overhaul. A new district WAN has been implemented, and district software upgrades have been made to *Rediker* and other district based applications. This project was accomplished in collaboration with the Town of Canton.
5. The district has now consolidated its Internet security appliances and increased bandwidth to 2 GB utilizing the WAN.

D. Access to the Internet Outside the School Day

1. The district works with community groups, including the public library, to ensure that students and staff have access to the Internet outside of the school day. The labs at all schools are frequently used by outside groups for after school enrichment programs, e.g. Future Problem Solvers.
2. The district web site does not currently include an up-to-date list of places where students and staff can access the Internet after school hours.

E. Staffing

1. The district provides 1 FTE Network Administrator who also supervises the technology support staff.
2. The district provides timely in-classroom technical support using a web-based help desk, as well as through personal contact, email, and phone contact with Technology Support staff. New staff members receive training in how to access the support.
3. Currently, there is 1 FTE Technology Support Specialist for every two schools: 1 for High School/Rodman Early Learning Center, 1 for Middle School/Hansen Elementary, and 1 for Luce/JFK Elementary. The ratio is approximately 1:640 computers (state benchmark is 1:200 computers).

GOALS

1. Consult with building principals and department coordinators/advisors regarding technology needs and priorities each fall as part of the budget development process.
2. Continue to implement a three-five year plan for computer replacement district-wide through funding from Capital Budget.
3. Expand the use of document cameras, projection systems, laptops, and interactive devices at all levels for the purpose of enhancing instruction.

4. Upgrade other key locations with Ruckus Wireless network solutions.
5. Review existing software versions and upgrade as funding allows.
6. Maintain a district procedure for all technology purchases to ensure that technology tools are standardized across the district.
7. Maintain a district policy regarding computer donations.
8. Centralize all network storage and application servers throughout the district with the use of HP Blade technology and HP Left Hand San Solutions.
9. Lay out a plan for the VOIP additions to the currently installed telephone systems at CPS. The new additions to the system will transform the current system to hybrid VOIP PBX systems. Benefits include: decreased phone cost, no charge calling between schools, centralized voicemail auto attendance and centralized administration.
10. Centralize Voicemail systems from six systems to one, upgrading from a DOS environment to Windows.

Security Systems

The Canton Public Schools has a district-wide security plan in place which includes a number of technology related items, including a keycard access system requiring picture ID badges for all staff members, cameras placed in multiple positions inside and outside each building, and web engines located in our head end rooms designed to collect video feeds as instances occur.

A primary responsibility of the Technology Department is to provide a safe environment for the utilization of technology district-wide. This includes, but is not limited to:

- safe Internet use
- an up-to-date Acceptable Use Policy
- enforcement of online safety rules
- integration of CIPA compliant content filtering software
- protecting our network from outside threats, utilizing firewalls, etc.
- frequently updating virus protection parameters and purchasing annual software
- integrating spyware software
- staff ID badging
- support of security camera system

In conjunction with our expanding safe schools initiatives in the district, we are continually working to enhance all of these areas.

GOALS

1. Continue to work with the Canton Police Department Safety Officer to promote Internet safety at all levels.
2. Post Internet safety information on the district website.
3. Update AUP for both students and faculty; post on district website.
4. Implement security system in CHS Library

Updated January 2010

Technology Funding

Budget

1. The district has a budget for its local technology plan with line items for technology in its operational budget. Due to past budget cuts, the line item for technology has been insufficient and can barely cover the cost of district software license renewals. The budget override vote in Spring 2008 restored additional funding for technology in the operating budget to cover repairs, supplies and peripherals. However, the overall technology budget is still insufficient to meet the ever increasing needs and demands.
2. The budget includes staffing, infrastructure, hardware, software, support, and contracted services (including telephone services). Technology professional development is funded through the regular professional development budget and grant funding.
3. The district leverages the use of federal, state, and private resources. As an example, building based CAPT groups have purchased monitors for elementary computer labs in two schools.
4. The district seeks E-rate funding for the following:
 - a) Telecommunications Services: One Communications for basic phone service for the district (116 lines) and Sprint/Nextel phone service for key district personnel.
 - b) Internet Access: Verizon– Primary Internet access/static IP router; Comcast – Secondary Internet access, as well as WW access to email server.

ERATE funding from FY09 will filter directly back into the schools to replace commonly used consumables, printer cartridges, LCD projector bulbs, etc.

5. The district pays for the non-discounted portion of their costs for the services procured through E-rate from the operating budget.
6. The district is able to implement a three-five year plan for computer replacement district-wide through funding from Capital Budget. Capital budget funds are also used to purchase instructional technology tools for each school, e.g. laptops, document cameras, and interactive devices.

GOALS

1. Continue to implement a three-five year plan for computer replacement district-wide through funding from Capital Budget.
2. Seek additional funding for technology through operational budget to reflect real needs.
3. Continue to utilize a consultant to make the E-rate reimbursement process more efficient.
4. Continue to pursue alternative funding for technology through grants and other sources.

E-Learning and Communications

Benchmark 5

E-Learning and Communications

- A. The district encourages the development and use of innovative strategies for delivering specialized courses through the use of technology.
- B. The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level.
- C. Currently, there are limited classroom applications of e-learning including courses, cultural projects, virtual field trips, etc.
- D. The district maintains an up-to-date web site that includes information for parents and community members.
- E. The district complies with federal and state law⁵ for archiving electronic communications produced by its staff and students (students do not currently have school email accounts). The district informs staff and students that any information distributed over the district or school network may be a public record via the AUP.

GOALS

1. Continue to expand the use of district and school websites to provide resources for students, parents, and faculty including an up-to-date list of places where students and staff can access the Internet after school hours and Internet safety information.
2. Promote the development of e-learning in the district through online subscriptions, piloting online courses, and working in collaboration with The Education Collaborative (TEC) to develop online learning opportunities shared by districts.

⁵ Information about state regulations is available from the state's Record Management Unit (<http://www.sec.state.ma.us/arc/arcrmu/rmuidx.htm>).

Summary

Canton has evolved tremendously during the past ten years from the implementation and installation of technology infrastructure to the integration and practical use of computers and applications. The district has demonstrated true leadership in this area and continues to grow and develop as parameters for hardware and use change.

Despite ongoing budget constraints, the Canton Technology Department continues to move forward, utilizing and supporting an array of emerging technologies. The override budget passed in Spring 2008 enabled the district to restore three important positions: 1 FTE Technology Integration Specialist, a .6 Middle School Computer Teacher, and a part time CAD Teacher at the High School. However, this partial restoration still does not provide the level of staffing needed in order to meet our district technology goals in an efficient fashion. In addition, it is anticipated that the necessity of making future budget cuts may, once again, impact district technology staffing.

The future always brings new challenges. New technologies are continually emerging; more and more teachers want to create and post web pages; staff will utilize the online help desk more frequently; teachers strive to enhance their use of presentation skills; staff will utilize advanced features in *FirstClass*; and teachers will increasingly rely on technology for curriculum and instruction, as well as advanced applications in data and record keeping. As a result, the Technology Department has a continually expanding role in supporting those initiatives and many others that are reliant upon technology for success.