

BART Technology Plan (School Year 2009-2010 through 2012-2013)

Technology has the power to engage and challenge students, assist them in communicating effectively, and provide teachers with more diverse feedback for assessment. Applications such as formative-assessment tools can help teachers ensure that students are meeting the learning standards defined by the state. By allowing teachers to access information about student learning, information systems make it possible for teachers to support individual students more effectively. Creative applications allow students to more effectively explore and express ideas, leading to a more thorough conceptual understanding and a more accurate reflection of that understanding. Online-learning programs can increase the range of learning opportunities available to students, enabling them to study with experts and other students around the globe. Technology can also play a role in ensuring students' safety, by facilitating communication among school personnel and parents.

Berkshire Arts & Technology Charter Public School (BART) seeks to meet or exceed all guidelines for technology use recommended by the Massachusetts Department of Elementary and Secondary Education.

I. Vision and Implementation Strategies

BART will be a national model, using technology to reform how students learn, what they learn and with whom they learn. Pervasive technology will impact all facets of the educational experience and engage all stakeholders within the learning community – students, teachers, administrators, parents and the public.

The Berkshire Arts & Technology Charter Public School (BART) prepares students for college by promoting mastery of academic skills and content through the integration of arts and technology in core subjects. The school provides middle- and high-school students in northern Berkshire County with an educational community that regards everyone, including teachers and parents, as lifelong learners.

A. Students

BART students will become proficient in the use of a variety of contemporary technologies (e.g., computers, handheld devices, digital still and video cameras, communication and productivity software) in order to conduct research, communicate ideas, solve problems, make decisions and reinforce conceptual learning. They will not only use technology to learn, they will also learn about technology and understand the role and impact of technology on society. They will use technology in a safe, ethical and

socially-responsible manner to create and share high-quality work with their peers and community. Specifically, BART students will:

- Use communication and productivity applications to support group work by sharing documents and other project components in a space accessible by all members.
- Use the internet as a research tool.
- Use communication and productivity applications to express ideas, demonstrate understanding and develop skills.
- Use technology to study, create, document and display art.
- Maintain digital portfolios to exhibit their work and demonstrate skills and knowledge. In addition to showcasing the work itself, the digital portfolio will be a place for students to reflect on their work and solicit critical feedback from teachers, peers, parents and the public.
- Include digital content in Gateway portfolios and utilize media to present portfolios.
- Demonstrate responsible and ethical use of technology.

B. Teachers

Our teachers will be adept at using technology to create and implement effective curriculum and instruction. They will integrate technology into their courses to support performance-based learning that requires students to demonstrate their knowledge and skills through authentic projects and activities. Technology will help teachers accommodate diverse learning styles and assess student mastery of knowledge and skills. In addition to facilitating collaboration and planning with peers and staff, technology will be used by teachers to support their own professional growth. Specifically, BART teachers will:

- Use technology to develop, implement and share unit and lesson plans.
- Use a standards-based reporting system to assess and monitor student mastery of specific content, skill standards and benchmarks in each subject. This provides students, parents and teachers with a detailed picture of student learning as opposed to the traditional single grade in each subject.
- Use technology to communicate with parents, peers, experts in their field and the public.
- Disseminate best practices in curriculum, instruction and assessment via the Web and other media.

- Utilize shared spaces to disseminate, receive and otherwise communicate information with students, peers and administration.

C. Staff

Our staff will use technology to promote efficient management of the organization. Technology will facilitate the collection of data to inform accountability measures and provide accurate information about the health of the organization. It will be used by staff to promote communication throughout the school community and support the work and professional development of teachers. Specifically, staff will:

- Use technology to efficiently share critical information and announcements with students, parents and faculty.
- Use financial software to develop an appropriate budget and adhere to fiscal policies and procedures.
- Use technology to collect and report critical data to the state and school community.
- Use technology to research and secure grants and donations from individuals, foundations, organizations and companies.

D. Parents

Technology will promote communication among parents, teachers and staff, and allow parents to stay abreast of the academic performance of their child. Specifically, parents will:

- Be able to review work in their child's progress via the Web.
- Participate in student-led conferences informed by digital portfolios and standards-based reporting.
- Have opportunities for developing their own technology literacy through access to BART's computer lab.

E. The Public

The public will use technology to learn about BART's innovative design, curricula, instructional methods, assessments and professional development. BART will also welcome the public to learn about BART's use of technology through direct

observation and dissemination efforts via a range of media such as the Web and CD-ROM. Technology will facilitate communication and collaboration between the BART community and educators around the world. Specifically, the public will:

- Be able to visit the school's website to obtain information on the school program, see the school calendar, and view student work.
- Be welcome to observe technology implementation in classrooms and school management.

II. Technology Integration and Literacy

A. Technology Integration

All teachers at BART will use technology on a daily basis for the dissemination of information through email, to plan lessons, and to share unit and weekly overviews via the *Faculty* shared volume and the wiki space of the BART website. By 2012, 95% of teachers will communicate with parents and students via the web.

Foundations of Technology will be taught as a trimester-long course in grades 6, 7, 8. High-school technology electives will include graphic design, web design, digital photography, media production and high-school foundations of tech (remedial).

By 2013, at least 85% of teachers will use technology appropriately with students every day to improve student learning of the curriculum. Activities will include research, multimedia, streaming video, data interpretation, communications and collaboration, student and teacher presentations, musical composition, graphing and graphic design.

B. Technology Literacy

In 2010 all eighth-grade students were required to create a website portfolio and include some technological element to their gateway-portfolio presentation. In 2011, all eighth-grade students were be required to create an electronic portfolio and include some multi-media in their portfolio presentation. In 2012, all middle school students will create a multi-media presentation of their academic work for use in a student-led parent-teacher conference or in a Gateway portfolio presentation. By 2012 at least 85% of eighth-grade students will show proficiency in all the Massachusetts recommended PreK-12 instructional technology standards for grade eight, as demonstrated by performance in the Foundations of Technology course.

100% of teachers set personal goals designed to achieve the proficiency level in technology, and by 2013, 90% of returning teachers will have reached the proficiency level as defined by the Massachusetts Technology Self-Assessment Tool (TSAT). In 2011,

100% of teachers will take the TSAT electronically.

C. Yearly Program Goals

In order to ensure that technology encourages learning and supports teaching, BART envisions the following for the 2011 - 2012 school year:

- Technology will be used as a method of presenting lessons, organizing data, planning, differentiating instruction, creating engaging lessons and providing an opportunity for students to express acquired knowledge.
- All teachers will utilize technology as a teaching tool.
- All teachers will increase their technology comfort level.
- All teachers will make advances on the TSAT
- Teachers at the proficient and advanced levels on the TSAT will integrate technology in the classroom in a consistent, ongoing manner.
- Technology-based projects will balance resources consumed (time, equipment, energy, etc.) with educational goals attained.
- Students will develop basic technology skills necessary for life in the 21st century
- Students will use technology responsibly.
- Students will apply technology to research, communicate, organize and solve problems.
- Teachers will develop authentic, robust lessons utilizing online lesson planning sources such as Promethean Planet and BetterLesson.org
- Teachers will develop authentic, robust lessons utilizing new technologies including interactive whiteboards and classroom response systems.

D. Accountability

As of August 2008, the following parties share responsibility for technology planning and decision-making:

Executive Director

Director of Technology

Principal

Director of Logistics

BART's Technology Steering Committee

The Director of Technology is responsible for coordinating all technology-related decision making and implementation. It is the responsibility of the Director of Technology to monitor yearly progress of the technology plan and report back to the Administration team and the Technology Steering Committee. The Technology Steering Committee will review the Technology Plan during third trimester and make recommendations for revision. Such recommendations will then be reviewed and be modified, accepted, or rejected by the Administration team. The Director of Technology will revise the technology plan each year and submit to the Board of Trustees for review before the start of the next school year.

III. Technology Professional Development

Each August before the start of the school year, all faculty are required to participate in 2 weeks of professional development, including a minimum of 6 hours devoted to using technology in instruction. An additional 6 hours of technology PD is scheduled throughout the year, primarily employing a workshop model in which proficient and advanced teachers share experiences and model best practices. 20-minute how-to sessions are available as necessary to provide basic skills training and maintenance.

Each August, all faculty members are administered the TSAT and are asked to identify skill deficits and goals for the year. The Director of Technology meets with staff throughout the year to assess goal progression and offer training and support as necessary. Each teacher is expected to show growth on the TSAT each year until Proficiency is attained.

IV. Accessibility of Technology

A. Hardware Access (as of 2011-2012 school year)

1. 191 student computers/262 students = 1:1.4
2. One, 24-seat hardwired iMac lab (Gates) for use in music, multimedia, and other needs of high-processor demand. (Should be available as much as possible for sign-out for tech integration involving multimedia.) The Gates lab shall remain under constant supervision from the Wozniak tech office. Gates lab shall be staffed and available for student use during Supported Study periods.
3. One, 24-seat hardwired iMac lab (Kahlo) for Music Composition classes and to supplement demands of Gates iMac lab.
4. Three, 24-unit MacBook carts available to all teachers for signout

5. 18 MacBooks available to students for signout
6. All staff (including teachers, administrators, support, paraprofessional) issued MacBooks.
7. Each classroom is equipped with a ceiling-mounted digital projector which can be accessed wirelessly from any staff MacBook utilizing *Image Express Utility*. Each projector is equipped with hard-wired options as well.
8. Five classrooms equipped with Promethean ActivBoards.
9. Five 24-unit sets of Student response systems available for teacher signout.

equipment	2008	2009	2010	2011	2012
green cart (MacBooks)	22	22	24	24*	24
blue cart (MacBooks)	22	22	24	24*	24
yellow cart (MacBooks)	18	18	12	24*	24
red cart (MacBooks)	22*	22	24	22	24
Kahlo lab (iMacs)	24*	24	24	24	24
Gates lab (iMacs)		24*	24	24	24
faculty/staff (MacBooks)	48	52	42	56	58
purple cart (MacBooks)			6	24	16
total	156	184	180	222	218
total student computers	108	132	138	190	188
students	247	252	240	286	286
computer:student ratio	1:2.28	1:1.9	1:1.74	1:1.5	1:1.5

* replacement/purchase year

B. Assistive Technology

BART provides assistive technologies as needed including *Solo Read:OutLoud* and *Co:Writer* universal access software, Alphasmarts, dedicated laptops, keyboarding software, etc. All Mac hardware include universal access preferences. 24 PC laptops have been installed with assistive technology and simpletext software for use

exclusively by the SPED department as demanded by student need.

C. Purchasing

Purchasing for information and instructional technologies is managed by the Director of Technology to ensure usability, equivalent access and interoperability. Preference is given to freeware and Macintosh platform solutions.

BART has established a computer replacement cycle of four years. The technology purchasing budget is reassessed on a yearly basis and adjusted based upon projected demand and hardware attrition. (See table in section IV-A)

D. Internet Access

BART currently uses a DSL 7.1Mbps incoming 2Mbps subscription from Crocker Communications and has five static IP addresses 159.250.17.25-159.250.17.30.

All internet access from BART's internal network is monitored and documented. Every URL accessed is timestamped and mapped to a user.

E. Networking (LAN/WAN)

BART's network layout is as follows. BART has 2 firewalls and 1 proxy server. The internet enters BART through the first firewall. At this point all traffic is filtered down to a few ports. A majority of the ports are mapped to machines that perform a service for BART but are not administered by BART.

Ports that pass from the internet directly into BART then pass through a second firewall for filtering to designated machines on the BART internal network.

All services that pass from the internet to BART's internal network are encrypted and password protected.

BART has 4 file servers all running OS X 10.5 This OS should not require major upgrades before 2011.

F. File storage

BART currently operates a double array of hard drives providing 5.5 TB of mirrored file storage.

G. Wireless Networks

BART maintains a single 802.11G network. It is an open network protected by kerberos password services. Access to the network is open but the network is not usable without a password. OS X 10.5 contains an implementation of freeRADIUS. BART uses the service to restrict access to the wireless network to all unknown computers.

H. Directory Services

BART runs Open Directory with an OpenLDAP backend for access to services on the BART network. OS X 10.5 includes the following services: Calendaring, Wiki Services, freeRADIUS

I. Access to the Internet Outside the School Day

In 2010 BART will implement extended-day computer lab time on Mondays, Tuesdays, and Thursdays from 3:30 – 4:30 for students.

By 2012 BART intends to provide extended-day computer lab time to students and parents at least 2 days per week.

J. Technology Staffing

As of 2010 BART employs:

½ FTE – Director of Technology

1/2 FTE – Instructional Technology Teacher

1/2 FTE – Technology Support Staff

½ FTE – Network Services Manager

supplemental consulting as needed

1 FTE – Director of Curriculum whose responsibilities include data management and assessment.

The Network Services Manager (NSM), while a half-time position, is onsite full time, covering the responsibilities of both network administration and tech support.

In-classroom tech support is requested by way of email, telephone, or online help-desk ticketing. The tech support office is staffed during school hours for walk-in assistance of staff and students.

The ratio of tech support staff to computers is currently 1:360. This will rise to 1:444 by 2012.

V. E-Learning and Communications

A. Academic Integration

BART encourages the development, use, and sharing of innovative strategies for delivering specialized courses through the use of technology. All staff members are

encouraged to utilize technology on a regular basis and staff members at or above proficient level are required to include technology in the classroom on a regular basis.

Technology-based visiting artists are included in BART's visiting artist program at least one trimester per year.

BART deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level. BART subscribes to various streaming media services including United Streaming, and participates in webcasts as academically appropriate.

B. Web Presence

BART maintains an up-to-date web site at www.bartcharter.org. The site is hosted by Network Solutions and maintained internally by the Network Services Manager. The site links at several points to the internal BART LAN and by 2011, it will be segmented into 3 levels of security targeting the general public (low security - general information), parents and students (password protected - student information), faculty and staff (password protected - internal information).

In 2010 the BART website is a primary communication point for parents, who will be able to access their children's current homework, individual course websites, calendars, menus, bus schedules, etc.

C. Acceptable Technology Use

BART is CIPA and COPPA compliant and complies with federal and state law, and local policies for archiving electronic communications produced by its staff and students. All internet access from BART's internal network is monitored and documented. Every url accessed is timestamped and mapped to a user. The district informs staff and students that any information distributed over the district or school network may be a public record. All staff, students, and parents are provided with and required to sign an Acceptable Technology Use Policy revised and adopted 08/08.