Pelham School District
Pelham, New Hampshire

Technology Plan

Executive Summary

The purpose of the School Technology Plan is to serve as a guide that describes a three-year implementation of the technology in place in the Pelham School District. This plan outlines a strategy for moving toward the vision of providing a 21st Century Learning Environment for our students. By the end of these three years, it is the plan for all staff in the district and all high school students to have access to an individual device that provides 21st century learning opportunities throughout the educational process for four years.

The implementation of the Common Core State Standards targeted at technological literacy across the curriculum K-12 is also key to the success of this plan. Students will be exposed to technology in classes along with the opportunities to learn the skills necessary to exhibit digital citizenship and 21st century learning and career skills.

Year one of this plan is dedicated to shoring up the technology infrastructure for the Pelham School District. The new infrastructure will support a universal wireless in all Pelham School District buildings; create a virtual environment where employees and students can access their work and software from a variety of locations, and the speed and reliability necessary to support the increased traffic on the network.

The acquisition and replacement schedule is designed to outline the major technology expenses and to recommend a phased approach in order to lessen the burden on the Pelham Community. In the second year half of the teachers will receive a laptop for professional use to ensure a reliable device to create a 21st century learning experience and to perform other professional duties. Fourteen of the twenty-eight classrooms at Pelham High School will be outfitted with the necessary AV equipment to provide this technology-rich learning environment. The middle school will receive an additional laptop/ipad cart for classroom use. In year three the remaining teachers in the district will received laptops, the rest of the Pelham High School classrooms will be upgraded, the elementary school will receive an additional/ipad cart and student devices will be provided for high school students unable to bring their own device for educational purposes.

Technology Vision Statement

Use technology effectively to impact the educational process by meeting the needs of all learners, and increasing the productivity of students, teachers, and administrators.

Use technology to provide an engaging, stimulating environment that encourages self-initiative in the learning process to develop lifelong learners.

Use technology to foster critical thinking skills, creativity, and research and informational fluency.

Use global access to information and communication to encourage learner development into 21st century citizens.

Practically this would mean students and staff would have a device at school and at home, access anywhere and the professionals would be educated and skilled in providing environments for students to utilize technology on a regular basis to enhance their learning.

Technology Goals

Long-Range Goals

1. Establish a program for students to effectively learn to use technology to retrieve, review and process information available to them; foster critical thinking and creativity; and provide global access to information.

2. Build a commitment to technology as a learning tool.

   -Provide appropriate and adequate hardware, software and other technologies to support learning, instruction and productivity at all levels.

   -Provide appropriate and adequate technology staff to assist teachers in the effective integration of technology into the curriculum.

   -Provide comprehensive professional development for the successful implementation of the integration process.

   -Train instructional assistants to complement professional staff in the use of technology

3. Build and support a district-networking infrastructure, which will provide for the use of electronic mail, Internet access, data access/storage, distance learning, and video distribution capability, for inter-building and intra-building communications.

4. Provide adequate facilities (such as power outlets, phone lines, etc.) for administrators, instructional staff, and students.

5. Provide adequate technical staff for the development, support and maintenance of the district technology infrastructure.

6. Develop a budget and implementation plan for the expenditure of school district, state, federal, corporate, and private grant monies consistent with the philosophy and goals of this plan.

7. Assess the implementation of the goals and vision of the plan, and then recommend changes to the plan on an annual basis.

8. Develop a plan to assess and measure the impact of technology on learning in our schools.

9. Explore emerging technologies and maintain a flexible and open approach to the implementation of technology and its integration into the curriculum, due to the rapidly changing nature of technology.

10. Set groundwork for computer literacy as a life skill.

11. Foster the relationships between business and the community.

Technology Integration

The use of technology in every classroom represents the most important use of technology from the perspective of student achievement. Technology is able to take a static lesson and transform it into a lesson that engages students in a way that a textbook or worksheet cannot. Student use of computers in regular classroom settings leads to higher test scores, greater retention of information, and ultimately more student success and achievement.

Curriculum drives the technology integration process in the Pelham School District. It is our belief that technology integration should be transparent and seamless across the curriculum. The Pelham School District's curriculum is aligned with the NH Curriculum Frameworks and the Common Core State Standards (CCSS). Curriculum is revised in regular cycles. The district sets curriculum revision priorities that are addressed by committees with representation from all schools. All throughout the curriculum revision process, Pelham staff identifies appropriate technology resources and/or applications of technology to support improved teaching and enhanced student performance.

The Pelham School District Technology Committee has adopted the National Educational Technology Standards (NETS) project, Technology Standards for Students. Future curriculum document revisions will align with the technology standards for students. Assessment tools, rubrics and/or processes will be developed to ensure that all students are technically literate by the end of grade 8 as required by the State of New Hampshire Department of Education.

Teachers are assisted by the Director of Technology, School Technology Integration Specialist, and Library-Media Staff to plan how to use technology for teaching and student learning within their specific curriculum area. Teachers are assessed as to their current skill level to help meet their professional development needs. Available technology resources, access and availability are also linked to project needs. Teachers are trained in the use of productivity software such as word processing, database, spreadsheet, and telecommunications as well as curriculum specific software. All staff members are required to demonstrate the integration of technology into their lessons in order for them to meet District recertification requirements as outlined in the Professional Development Master Plan.

The district realizes that effective integration of technology into the curriculum is a slow process which requires extensive professional development and technical support. Teachers often use technology tools to replicate the way they teach now. It can take years before a teacher can integrate technology effectively to the point of utilizing the technology to its fullest potential. It is a high priority of the district to continue with its efforts to provide teachers with the necessary training, support and resources necessary for them to be successful with technology integration to improve the teaching and learning process.

Technology Integration Projects

      The Pelham School District has had success in integrating technology into the teaching and learning process. Various learning units throughout the curricula have been revised to provide a more hands-on approach using technology for part or all of the presentation. In implementing this process, instructional staff and students have acquired various technology skills without being taught specific tasks.

In a general way, technology is being used to:

- Research, using the Internet and online information databases to access, analyze and communicate information.
- Access the Internet and e-mail resources tied to curriculum objectives.
- Utilize curriculum specific software correlated to specific activities.
- Create slideshows, multimedia presentations, podcasts and movies.
- Access to rich video content via the Internet and subscription services.
- Provide keyboarding instruction to students.
- Used for numerous writing activities such as creating books and reports.
- Utilize Webquest activities

      With the addition of developmentally and age-appropriate software and online subscriptions as well as computers that can handle multimedia tasks, we strive to provide the opportunities for students to create additional technology products that make learning more productive, meaningful and relevant.

These projects will include but are not limited to the following:

  Accessing, using or creating….
  Web sites and blogs
  Podcasts
  Movies and animations including images and videos downloaded from cameras
  Access to electronic books
  Creating original music compositions
  Participating in social media and communicating in a global society
  Supporting Resources for Technology Implementation (Personnel, Software, Supplies)

      In addition to the Director of Technology and school technology staff, additional resources are necessary for successful technology implementation. The District needs to provide for the acquisition of a variety of resources to support technology use in the teaching and learning process. These resources include but not limited to:

- Technology staff/contractual services (maintenance, training, technology integration)
- Hardware for Multimedia use
- technology supplies
- print and video resources
- Software for teaching, learning, and management

The Pelham School District recognizes that adequate and appropriate technology staff is key to the successful use and integration of all its technology resources. The Pelham School district technology staff consists of a Director of Technology, one full time technician responsible for maintaining all equipment at the three Pelham schools and one technology integration facilitator responsible for supporting all teachers in the technology integration process.

Additional staffing resources are necessary to support integration of technology. The district needs two technology integration specialists to assist staff with planning and implementation of technology-enhanced lessons, one for grades PK-5 and another for grades 6-12. This would allow for a cohesive adaptation of school curriculum into technology integration and the necessary age appropriate lessons to be created and carried out in a timely manner.

Contractual services continue to be necessary for a variety of technology services. All network hardware and district administration servers are maintained by the Director of Technology. Network management is also the responsibility of the Director of Technology. However, other services are contracted on an as needed basis, particularly for professional development and high end technical services.

State-of-the-art software for the following main categories will be regularly purchased, maintained and upgraded as needed:

- productivity/presentation (word processing, spreadsheet, database, utilities, etc.)
- administrative (district, school and classroom management)
- curriculum (simulation, probe ware, ILS)
- information resources (electronic encyclopedias, news databases, print resource databases, etc.)
- communication and research tools
- on-line subscriptions

Software purchases are coordinated through the Director of Technology in an effort to secure the best possible pricing and licensing agreements. The district favors purchases of multi- license software when appropriate. School libraries purchase on-line subscriptions to such services as BrainPop and Grolier Encyclopedia. This is the most cost effective manner to provide timely up to date information resources to staff and students via the Internet. Some subscriptions are available for students and parents to access from home.

Other resources such as supplies and print resources are supplied annually from the district budget. Print and video resources are cataloged through school library automation software and available for staff to sign out. These resources are critical for the continued success of the program. Budgets are reviewed annually to assure that adequate funding is allowed for resources to support district technology implementation and support efforts.

Operations

The operational use of technology is expansive. It represents the following areas:

- ➢ Student Information Management
  - o Report Cards
  - o Teacher grading
  - o Lunch Program Administration
  - o Nurse Administration
  - o Library Administration

- ➢ Financial Information Management
  - o Purchasing work flow
  - o Payroll
  - o Accounts Payable
  - o Budget preparation and reporting

- ➢ Email
  - o Intra-district
  - o Between staff and parents/students
  - o Virus and Spam filtering

- ➢ Telecommunications
  - o Phone line facilities
  - o Internet connectivity
  - o Building level phone system management

- ➢ Network Hardware
  - o Connections between buildings
  - o Local area network systems

- ➢ Server Hardware
  - o Storage Virtualization

- ➢ Repair/Help Desk Functions
  - o Staffing
  - o Ticket management
  - o Accounting

- ➢ Web Site Maintenance
  - o Hosting
  - o Development and Maintenance
  - o District, building, and teacher based websites

- ➢ Internet Access and Filtering
  - o Filtered access
  - o Access accounting and reporting

- ➢ Centralized Account Management

- ➤ File Storage
  - o Basic storage
  - o Backup and Recovery

Access to Technology Resources
Local Area and Network Design

All of the school buildings are connected with private fiber optic cable and are managed as one large, centralized network with resources consolidated to achieve economies of scale.

The District relies heavily on virtualization as its backend infrastructure for both server and client side resources. The virtualization cluster is located at PES and consists of servers, storage, and networking equipment all built around the concept of virtualization.

Currently, the network uses Active Directory and Windows.

A centralized wireless system will be installed in the summer of 2012 to allow for seamless wireless access throughout the District.

Copyright and Software Licensing

The Pelham School District adheres to copyright law as outlined in the School District Policies and Federal Law. All software is licensed in accordance with vendor requirements. Every effort is made to ensure that only legal and licensed computer software is loaded on district workstations. Educating district staff on copyright law and fair use guidelines is an on-going process. The school district will continue to make concerted efforts to enforce copyright and provide adequate professional development in fair use guidelines for staff.

Total Number of Computer Systems

	Thin Clients	Computers	Laptops	Total
PHS	170	108	46	324
PMS	57	72	87	216
PES	126	49	103	278
			Total	818

Admin/ Student Break Down

	Admin TC	Admin Laptop	Admin Desktops	Student TC	Student Laptop	Student Desktop	Total
PHS	15	13	16	155	33	92	324
PMS	4	4	12	53	83	60	216
PES	11	9	11	115	94	38	278
Totals	**30**	**26**	**39**	**323**	**210**	**190**	**818**

Servers

The district currently has 10 physical servers in use. These are used to run VMWARE infrastructure

	Qty
HP DL380 with 72GB of Ram	3
Dell Power edge 2950s with 24GB of Ram	4
Dell Power Edge R710 with 72GB of Ram	4

Technology Staff Overview

The technology department is comprised of 6 people
- Technology Coordinator
- Network Engineer
- Technology Integration Specialist
- 3 Technicians

Network Inventory

Pelham's Local Area Network is built on Cisco Catalyst switches. All the buildings in the Pelham School District are connected though fiber.

	6500 Series	3650G Series
PHS	1	1
PMS	1	5
PES	3	2

Data Storage

All District data is stored on an EMC Clarion CX4-120 array that is connected to the VMware cluster on a private iSCSI based network. In total, over 12 terabytes of storage space is available for the District's needs.

ISP Providers

3 Comcast Business Class Cable modems at 12Mbps/2Mbps.
2 Paetech T1 Lines

Professional Development

The Pelham School district recognizes that comprehensive and continuous professional development for integrating technology into the curriculum is essential for success. The district is focusing on integrating technology into the curriculum as a tool to enhance teaching and learning. The district administration is responsible for continuing the development and evaluation of a technology in-service training program for faculty, staff, and administrators. The procedures used to conduct staff development will be driven by assessments of the needs and competencies of the district staff so that appropriate training curriculum can be devised.

The Pelham School District Technology Committee has adopted the National Educational Technology Standards (NETS) for Teachers and Administrators as well as the Common Core State Standards (CCSS). These standards and performance indicators define the fundamental concepts, knowledge, skills and attitudes for applying technology in educational settings. The District will work with district staff to promote and assess these standards on a small group basis. Professional Development workshops must incorporate hands on, concrete activities that directly relate to the staff members every day responsibilities. The needs assessments completed by the staff will direct the need for continued support and training in the schools. Several different levels and training formats are needed to accommodate district staff. For example, workshops will need to be offered for basic and introductory levels, application specific software, multimedia software, technology integration in all curricular, and Internet applications. All training activities need to be intensive, sustained, and classroom focused.

In addition to in house professional development opportunities, there are many other technology workshops, seminars and courses offered by outside sources. The district will also provide on-line professional development.

The Pelham School District will investigate innovative professional development strategies for potential implementation in the district. Teachers will be encouraged to participate in new innovative strategies and assessments will be developed to measure their effectiveness.

Coordination of Technology Funding From State and Local Sources

The purchase and implementation of technology in schools promotes a financial burden to the taxpayers of the Town of Pelham. Because of this, the district must utilize every funding source available to support the technology program. It is essential that all funds available to fund this technology plan are utilized in a manner that meet the plan's goals and objectives increasing the capacity for teachers to integrate technology into the curriculum and improve student achievement.

A process is being put in place where technology priorities are determined each year by the district technology committee and the school district leadership team. Available funding sources are aligned with the annual technology priorities. The Pelham School District Technology Plan's action plan and budget is reviewed annually and revised to reflect available funding sources. The Pelham School District strives to utilize several different funding sources to support technology acquisition, operation, training, and maintenance. The major technology funding sources include:

- Local district budget
- Federal entitlement funds (Title IID, Title IIA)
- Competitive grant awards
- Business and community support
- Pelham Compensation Model (PCM)
- Universal Service Fund (E-Rate)

Community Collaboration and Collaboration with Adult Literacy Services Providers

The Pelham School District has a collaborative agreement with the Salem School District, School for Continuing Education. Adult Literacy Programs are offered in the spring and fall consisting of:

- Numerous Enrichment Programs (many technology oriented)
- Adult Basic Education
- Adult High School Equivalency
- Adult High School Diploma

The Pelham School District will continue to work closely with the Salem School District to maximize the use of available resources in program offerings. Efforts will be made on the part of the district to open schools on a periodic basis for community workshop and training activities utilizing district resources. Also, Pelham School District staff continues to expand the district web site design and development.
Additional and updated information is added to the web sites in an effort to provide valuable and useful information to the Pelham Community about our schools and programs.

PSD Technology Replacement Schedule

To achieve the vision identified in this plan the following technology replacement schedule is recommended. For the life of this plan, the totals would be $171,750 for FY 14, $221,750 for FY15 and $78,250 for FY16. By the conclusion of these three years, all teachers in the Pelham School District would have a laptop for classroom and professional use, all 28 classrooms at the high school would have the technology to support a 21st century learning environment with interactive white boards, projectors and speakers, and every high school student would have a 21st century learning tool available in each class to engage in 21st century skills on a daily basis.

Item	Replacement Cost	Number in Service	Average Life Span	Stagger?	Starting Fiscal Year
Servers	$8,000	14	7	Yes	FY14
UPS Systems	$10,000	7	7	Yes	FY15
Core Networking	$35,000	5	10	Yes	FY17
Networking	$10,000	4	10	Yes	FY18
Admin Desktops	$1,000	40	5	No	FY19
Storage Devices	$75,000	2	5	Yes	FY19
Teacher Laptops	$500	200	5	Yes	FY14
Printers	$1,000	50	5	Yes	FY14
Laptops- Carts	$850	175	5	Yes	FY14
Class Computers	$400	300	10	Yes	FY17
Class AV	$4,000	105	8	Yes	FY18
Student Devices	$500	100	4	Yes	FY16

Fiscal Year	Total	Servers	UPS System	Core Networking	Network-ing	Admin Desktops	Storage Devices	Teacher Laptops	Printers	Laptop Carts	Class Comp.	Class AV	Student Device
FY14	$171,750	$16,000	$10,000					$50,000	$10,000	$29,750		$56,000	
FY15	$221,750	$16,000	$10,000					$50,000	$10,000	$29,750		$56,000	$50,000
FY16	$78,250	$16,000	$10,000						$10,000	$29,750			$12,500
FY17	$220,250	$16,000	$10,000	$35,000			$75,000	$20,000	$10,000	$29,750	$12,000		$12,500
FY18	$286,250	$16,000	$10,000	$35,000	$10,000		$75,000	$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY19	$251,250	$16,000	$10,000	$35,000	$10,000	$40,000		$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY20	$211,250	$16,000	$10,000	$35,000	$10,000			$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY21	$211,250	$16,000	$10,000	$35,000	$10,000			$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY22	$286,250	$16,000	$10,000	$35,000	$10,000		$75,000	$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY23	$286,250	$16,000	$10,000	$35,000	$10,000		$75,000	$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY24	$251,250	$16,000	$10,000	$35,000	$10,000	$40,000		$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY25	$211,250	$16,000	$10,000	$35,000	$10,000			$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY26	$211,250	$16,000	$10,000	$35,000	$10,000			$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY27	$286,250	$16,000	$10,000	$35,000	$10,000		$75,000	$20,000	$10,000	$29,750	$12,000	$56,000	$12,500
FY28	$286,250	$16,000	$10,000	$35,000	$10,000		$75,000	$20,000	$10,000	$29,750	$12,000	$56,000	$12,500