Technology Report

**Presented
To the
Cape Elizabeth School Board**

January 25, 2011

Table of Contents

Section 1 - Introduction

This report is intended to provide some background information and data prior to our presentation at the Jan. 25, 2011 School Board workshop. Additional information with examples of our work will be provided for you through our presentation on the 25th.

The following belief, vision and goals are from Cape Elizabeth's Technology Plan 2010-13:

Technology Belief/Vision Statements:

- Technology supports and is a tool to assist with teaching and learning.
- Technology integrates into all curriculum areas K-12.
- Technology supports and is a vehicle for communication and collaboration between staff, students, parents and the global community.
- Technology professional development provides critical support needed for both students and staff in the lifelong journey of learning in an increasingly digital world.
- Technology provides students and staff with immediate access to information and improves productivity and efficiency.
- Using technology ethically and responsibly (Digital Citizenship) needs to be modeled, integrated and an included as an important concept throughout our K-12 curriculum.

Technology Major Goal Areas:

Leadership - Encourage school and district leaders to not only supervise, but provide informed, creative and ultimately transformative leadership for systemic change of the rapidly evolving development of information and communication technology.

- Invest in leadership development programs to develop a new generation of tech-savvy leaders at every level.
- Retool administrator education programs to provide training in technology decision making and organizational change.
- Develop partnerships between schools, higher education and the community.
- Encourage creative technology partnerships with the business community.
- Empower students' participation in the planning process.
- Provide district level administrative technology support (Technology Coordinator/Director) to provide management, leadership and vision

Budgeting and Resources - Develop a yearly budget generated successfully through innovative restructuring and reallocation of existing budgets to realize efficiencies and cost savings with the new focus geared towards the educational objectives in terms of how they support student learning and specific educational goals.

- Consider a systemic restructuring of budgets to realize efficiencies, cost savings and reallocation.
- Encourage use of alternative funding sources (CEEF, Parent's Associations, etc.) to provide technology

resources for students and staff.
- Leasing with 3-5 year refresh cycles.
- Determination of total costs for technology as a set percentage of total spending
- Examine open source alternatives to software
- Examine and implement a move towards cloud computing
- Seek technologies which reduce dependence on local infrastructure, and wherever possible advocate for simplification of that infrastructure

Professional Development - Ensure that all teachers have sufficient training in the effective use of technology to enhance learning within the classroom.

- Provide new staff with support in the use of technology.
- Provide teachers access to research, examples and innovations as well as staff development to learn best practices.
- Provide professional development opportunities for effective technology integration and to benefit teacher/ student learning.
- Ensure that every teacher has the opportunity to take online learning courses.
- Ensure that every teacher knows how to use data to personalize instruction.
- Provide professional level (Technology Integrators) along with technical level support to assist staff with the integration of technology into their curriculum areas.

Access to Technology and Resources - Ensure that all staff have the technology resources (hardware, software, Internet access, web resources, etc) to realize the full potential of technology and it's impact in their students and classrooms.

- Broadband access 24 hours a day, seven days a week, 365 days a year to help teachers, students and parents realize the full potential of this technology.
- Ensure broadband capabilities and access are reliable.
- Make broadband available all the way to the end-user for accessing high-quality digital content , online and technology-based assessments, e-learning, and data management.
- Have available adequate technical support to manage and maintain computer networks, maximize educational up-time and plan for future needs.
- Ensure all staff have adequate access to technology.
- Identify and deliver solutions which empower students and teachers to use technology to its fullest extent with diminishing need for support

Digital Content - Encourage the use of multimedia or online information (digital content) which offer many advantages, including cost savings, increased efficiency, improved accessibility, and enhancing learning opportunities in a format that engages today's web-savvy students.

- Ensure that teachers and students are adequately trained in the use of online content.
- Encourage ubiquitous access to computers and connectivity for each student.
- Consider the costs and benefits of online content, aligned with rigorous state academic standards, as part of a systemic approach to creating resources for students to customize learning to their individual needs.
- Provide an environment to make it possible for students at all levels to receive high quality supplemental or full courses of instruction personalized to their needs via an E-Learning environment.
- Provide student and teacher access to E-learning.
- Encourage teachers to teach using an E-learning format (such as MOODLE) to supplement class

instruction.

Data Systems - Develop and utilize an integrated, interoperable data system that allows better allocation of resources, greater management efficiency, and online and technology-based assessments of student performance that empower educators to transform teaching and personalize instruction.

- Establish a plan to integrate data systems so that administrators and educators have the information they need to increase efficiency and improve student learning.
- Use data from both administrative and instructional systems to understand relationships between decisions, allocation of resources and student achievement.
- Ensure interoperability between schools for cost savings.
- Use online testing to focus on improved instruction through rapid assessment and feedback.
- Use assessment results to inform and differentiate instruction for every child.
- Provide staff for managing, reporting, and providing professional development for our data systems.

Meet the Cape Elizabeth Technology Staff:

Gary Lanoie,   *Technology Coordinator/Director*
Degrees: 1974 BS - University of Maine at Portland-Gorham
1979 MS - University of Southern Maine
1997 MS - Lesley College *(Computers in Education)*
Experience Teacher at Cape Elizabeth Middle School (15 years)
Teacher at Cape Elizabeth High School (8 years)
Technology Coordinator/Director (1997 to present)
Cape Experience: All educational experience (1974 to present) in Cape Elizabeth

Tim Hattaway   *Technology Integrator for Pond Cove School*
Degrees: 1992 BS - Elementary Education - Troy University, Troy, AL
1996 MS - Elementary Education - Troy University, Troy, AL
Experience: Teacher at Greenville Middle School, Greenville, AL (6 years)
Teacher at Greenville Elementary School, Greenville, AL (8 years)
Technology Integrator at Pond Cove Elementary (2009 to present)
Cape Experience: Technology Integrator (2 years)

Gwyneth Maguire, *Technology Integrator for Cape Elizabeth Middle School*
Degrees: 1987 BS - Boston College, Chestnut Hill, MA
1988 MEd - Boston College, Chestnut Hill, MA
Experience: Teacher at Brockton Public Schools, Brockton, MA (1 year)
Computer Trainer/ Training Supervisor/Technical Writer/Graphics Specialist, US Air Force Contractor in MA & TX (4 years)
Substitute Teacher at DOD Schools Germany Region (1 year)

Administrative Assistant at St. Bartholomew, Cape Elizabeth (3 years)

Technical Specialist/Advertising Team at *The Cape Courier* (1 year)

Substitute Teacher at South Portland Public Schools (1 year)

Computer Publishing & Design at Moonlight Express (22 years)

Technology Integrator at Cape Middle School(2009 to present)

Cape Experience: Substitute Teacher, Cape Elizabeth Schools (1 year)

Technology Integrator (2 years)

Jake Koelker *Technology Integrator for Cape Elizabeth High School*

Degrees: 2003 BA Gordon College, Wenham, Massachusetts

Experience: Ed Tech in two self-contained Special Education classrooms at Mahoney Middle School in South Portland (2 yrs)

Substitute Teacher in Falmouth, Cumberland, Yarmouth, and South Portland School Districts (2 yrs)

Long-Term Substitute at Pond Cove Elementary School in the Choices Program, Cape Elizabeth (1/2 yr)

Ed Tech in Learning Center at Harrison Middle School, Yarmouth (1yr)

Technology Integrator at Cape High School (2 yrs)

Cape Experience: Long-Term Substitute at Pond Cove Elementary School in the Choices Program (1/2 yr)

Technology Integrator (2 yrs)

Jack Duffy, *Computer Technician*

Degrees: BA Environmental Science - University of Southern Maine - 1999

Experience: 2003-2005: MLTI Tech Lead, Saco Middle School

2005-2007: Computer Technician, School Union 7, Saco Maine

Cape Experience: 2007-Present: Computer Technician, MLTI Tech Lead

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Jason Lund, *Computer Technician*

Degrees: Associates Video and Multimedia Technology - SMTC 1998

Experience: Lab Administrator at Thornton Academy (98-99)

Cape Experience: Computer Technician in Cape (99 - present)

Matthew Young,*Computer Technician*

Degrees: 1997 BSc (Hons) - Bournemouth University, England

Experience: Computer Technician at Stowe School, England (97-05)

Cape Experience: Computer Technician in Cape (05 - present)

Dean B. Zaharis, *Data Manager*
Degrees: BS Biology - University of Maine - 1969
                             BA Computer Science - University of Southern Maine - 1982
Experience: 28 years: Teacher of Science & Computer Science - Scarborough High
                             School
              2005-2006: Tech Integrator CEMS/PowerSchool Support
              2006-2008: Tech Integrator South Portland High School
              2008-2009: Tech Integrator CEMS/PowerSchool Support
               2009-Present: Data Manager CESD
Cape Experience:
                                        2005-2006: Tech Integrator CEMS/

PowerSchool Support

              2008-2009: Tech Integrator CEMS/PowerSchool Support
              2009-Present: Data Manager CESD

Current Assessment of Technology – January 2011

Cape Elizabeth has been fortunate in providing access to technology, network services and support for our schools and staff since our first Technology Plan in 1994. Technology resources have been acquired through local budgets, state funding (MLTI) and grants. One of our primary goals of acquiring technology and services is to impact teaching and learning in the district. The following is a brief overview of several areas:

Laptops:
Staff in our district in Grades K-12 are provided with laptop computers. The Middle and High school staff are provided laptops FREE through the Maine Learning Technology Initiative (MLTI) and the elementary school with district technology funding. This allows anytime/anywhere access to computing and network services.

Network access:
Our schools have been wired for network access for approximately 13 years now. In the fall of 2009 both the middle and high school wireless networks were upgraded with Cisco access points through the MLTI project. These are robust enterprise level networks that were provided by the State of Maine through the MLTI project. The value of these wireless networks is in the $30-$50K range.
The Pond Cove wireless network was also upgraded slightly by moving previous MLTI POE (power over ethernet) access points and switches to this school. The Pond Cove wireless network is built with older technology and is in need of upgrade. It's important to keep the behind-the-scenes infrastructure capable of handling the increase demand on network services. Pond Cove wireless networks are running on 6 year old technology that was never really built for enterprise level deployments. I am hoping to upgrade the Pond Cove wireless network through the budget process in next school year.
Our wired networks are all based on ProCurve managed switches running at speeds of 100MB to 1000MB (1GB). We are fortunate to have all of our schools plus the public library located within a campus environment that allowed our district to connect buildings together with fiber cabling. The main connections between buildings and wiring closets and is via GB fiber links.

Internet:
Internet connectivity is currently provided by a 50 MB Networkmaine connection that is brought into our Middle School. Federal and State erate pays for this Internet connection. The connection is delivered to the High School, Pond Cove Elementary School, Community Services and our local public library (Thomas Memorial Library) via fiber optic cable connections. This connection allows our district to share one Internet connection and network resources as if they were in the same building. Filtering is provided, to comply with CIPA (Childrens' Internet Protection Act) regulations, to all building through a central WatchGuard firewall. This firewall also provides security and spam filtering for the district.

Equity of access to technology:
Computer labs are available for student use during any non-scheduled class periods. Labs are also available

many days before and after school. Each school's library has 12-20 computers available for student use. The high school library is open until 4:00 PM Monday - Thursday to provide access to computers and other resources. The Community Services department uses our computer labs in all buildings for adult education courses during afternoons and evenings. All three schools have access to mobile labs for staff to roll into classrooms for technology access. As part of the Maine Learning Technology Initiative (MLTI) each of our seventh and eight grade students and staff have an Apple MacBook for school and home use. Access to technology is very good in all of our school buildings but probably the best at the middle school through the efforts of the MLTI program.

Maintenance and Support:
The Technology Department of Cape Elizabeth is a joint town/school department. This joint venture is something our department has been doing for over eight years now. Sharing services and support has helped to fund technology staffing. The district currently has three district-wide computer technicians to deal with the day-to-day maintenance of computers and technology in our schools and town. Also available are Technology Integrator in each of the schools to assist staff with integrating technology into their classrooms.

Coordination:
Cape Elizabeth School district hired a district-wide Technology Coordinator in 1996. This position still exists today and is a part of Cape Elizabeth's district leadership team. The Technology Coordinator is responsible for coordination of all the district's technology including budgeting, ordering, inventory, staff development, software purchasing, E-rate, technology planning, personnel management, etc. The Technology Coordinator also handles Town technology purchases. This has allowed for standardization of hardware and software throughout the school/ town and also resulted in savings through educational/government pricing.

Teacher Web Sites:
Beginning in the fall of 2006, teachers have the ability to create teacher website for their classes simply by using templates provided through our email system. The move to Google Apps for education offers a suite of tools, including Google Sites, that gives teachers the opportunity to publish web sites using that tool. The Technology staff worked with each building administrator to build a template for each schools needs. Teachers are provided this template through Google Sites that includes features specific for each school. Our view is that teachers do not need to become web designers and learn complicated HTML or design factors for their websites. The templates are structured so that all teachers need to do is add content. Included with the template is a homework/ class calendar where teachers can post assignments or activities and have them immediately available on the web. Students and parents can access this information 24/7. Google Sites has provided an easier to use tool for staff than the previous FirstClass teacher websites with many additional features.

Elementary School:
Our elementary staff all have laptop computers. Some elementary classrooms also have desktop computers and there is a computer lab in the building. There are two mobile computer labs with 20 laptops available for teachers to use in classrooms. The Media Center at the elementary school has 10 computers for student access. Printing services are delivered through networked laser printers at each grade level and in strategic areas of the building. Three networked color printers are also available for staff use. Staff have access to a server for file storage and backup and several digital camcorders and digital cameras for staff/student use.

Over the last couple of years several grants provided by the Pond Cove Parent's Association and the Cape Elizabeth Education Foundation have allowed us to equip many elementary classrooms with projectors and Smart Boards. As of the 2010-11 school year, all grade level classrooms in Pond Cove are equipped with a mounted projector and Smart Board.

Middle School:
Our Middle school has benefited greatly from the State of Maine's MLTI project. All staff have laptops for computing and network access. Students in grades seven and eight also have laptops for school and home use. Cape Elizabeth is a district that has allowed students to take laptops home from the first year of the MLTI project. Our district feels that there is great benefit in increasing access to technology for our students. Grades five and six have several mobile laptop labs of 20+ laptops available for their students use in classrooms. The middle school contains

a computer lab that is used for instruction and integration with fifth and sixth grade students. Lab computers are available to all student and staff during free periods. Access is also available in the library through 10 student accessible computers. The middle school also has available many data/computer projectors, digital camcorders and digital cameras and Smart Boards for student/staff use. Printing services are delivered through several networked laser printers at each grade level and throughout strategic areas of the building. There are four networked color printers available in the Middle School. Local printing is available in some classrooms and in Special Education areas.

The Middle School has also benefited from CEEF and parent's association grants. As of this 2011 assessment all classrooms except five have been equipped with mounted projectors. Many of theses room also have some form of interactive whiteboards (Smart Boards or Mimios) available to staff.

High School
All classrooms teachers have laptops available to them through the MLTI Program.
The High School has several labs available for students & staff use:
> One computer lab with 18 computers
> Library with 20 computers
> Six carts with 24 laptops each assigned by department throughout the high school (English, Math, Foreign Language, Science, Social Studies, First floor cart).
> Special Services also has 20 laptops for use within its' program.

Achievement center with 12 windows computers
High School library computers are available for student's Monday - Thursday until 4:00 PM to provide access to computers and other library resources.
The high school also has available several data/computer projectors, digital camcorders, digital cameras and Smart Boards for student/staff use.
The high school network was just upgraded through a renovation project several years back.
Printing services are delivered through several networked laser printers available throughout strategic areas of the building. There are also five networked color printers available to staff & students in the high school. Local printing is available in some remote classroom or office areas and in many Special Education rooms.

Projectors:
Technology and the Internet can provide opportunities for a wealth of information and resources to supplement materials in most classrooms. Incorporating some of the media rich content available today into our classrooms is a great opportunity for staff. However, we must make it as easy as possible for teachers to use this content in their classrooms. Having the capability to display what's on a teacher's computer to the class should be a basic tool of each classroom in the 21st century. The Technology Department has been working towards getting projectors available for all classrooms in each school so staff may take advantage of technology resources.

District Resources:
Moodle Server - For creating an online component to courses/classes.
Blog, Wiki server
Google Apps for Education - Email, Docs, Sites, Calendar and more
Central authentication system - one user ID and password that works on multiple systems.
HelpDesk system for technical support
Single Student Information System (PowerSchool) and teacher gradebook (PowerTeacher)
Single Library card catalog system (Destiny)
Print Management System (Papercut)

Section 2 - Technical Services
As part of the one-town concept the technology Department provides support to both the town and schools of Cape

Elizabeth.

Town Tech Support
The town provides a contribution towards the tech staff salaries ($35,000). Town work represents between 10-15% of our caseload yearly. The technology staff provides support for Town Hall, Police, Fire, Public Works and Thomas Memorial Library. Additionally we provide support for Community Services, a departments that supports both school and town.

The Technology Department provides support and services to the schools for the following:

MLTI (Maine Learning Technology Initiative) – commonly called the "Laptop Program"
- Provides laptops for staff in grades 7-12
- Laptops for students grades 7 & 8
- Warranty Support for four year lifespan of program
- Battery replacement for the lifespan of program
- Local Depot for all warranty repairs
- Enterprise Wireless network in both the Middle & High School (Value of this installed network is approximately $30-$50K per school)

Computers
- Managing all computers
- Troubleshooting and tech support
- Processing off-site repairs
- Creating computer images (the perfect computer that will be copied over to other)
- Install the image on different sets of computers
- Software installs
- Software license management
- Technology Inventory (network based collection of data)

Printers
- Managed all printers for school & town staff
- Troubleshooting minor issues
- Major repairs handled by cost-per-copy contract
- Supplies (Toner cartridges & ink) now handled by cost-per-copy contract
- Print management system (Papercut) - software that manages users and number of print copies allowed
- Networked photocopiers

User Management (Usernames and Passwords)
- Central authentication system (single sign-on system)
- Microsoft Active Directory user management
- User management with groups, rights, profiles and access privileges
- User management in multiple data systems
- Managing connections between/among these data systems
- Creating groups, rights and privileges

Network Management
- Manage WAN (Wide Area Network) and LAN (Local Area Networks)
- HP ProCurve managed network switches
- Cisco Wireless network at MS & HS
- Nagios – Network monitoring system
- Watchguard - Firewall, spam and Internet filtering
- NetworkMaine - 50MB Internet Connection
- Network cabling and fiber connections

Servers
- Microsoft Windows 2003 & 2008 Servers
- Macintosh OS X Servers – User Data Storage
- Open Suse Linux Server (Nagios, GLPI & OCS) – Inventory, helpdesk
- Apache - Web Server, Blogs, Wikis
- Cape Core - Windows DHCP/DNS server
- Destiny Library database server serving all three libraries.
- FileMaker Server , Database access
- PowerSchool Server , District-wide Student Information System (SIS)
- SIS Data Report Server
- Moodle Server , Course management system
- PaperCut , Print Management software
- Card Access Server
- Video Surveillance Server
- PressStore Backup server
- Northern Data Systems (NDS) – Town financial system
- Windows Server – Plato
- XenServers – Virtual Servers, Disaster recovery
- Zone Integration Server (ZIS)
- Web based systems
  - AESOP – Sub calling and absent management for staff
  - Google Apps – Email, documents, web sites and more to come
  - PreK-12 Notification System

Administration
- Centralized purchasing
- Standardization of technology purchases (EX: projectors, switches)
- Centralized support for technology and professional development
- Centralized printer management
- Personnel management
- Direction planning
- Testing & assessment of new technologies

Here is the the current inventory data of technology devices we support for both Town & School:

Computers	1224
Printers	129
Network devices	125
Servers	22
Other Technology (projectors, etc)	242

HelpDesk Data:

Location/Group	Number of Tickets 2008-09	Number of Tickets 2009-10	Number of Tickets 2010-11 to Date*
CEHS	493	506	196
CEMS	656	979	744
Pond Cove	419	803	351
***MLTI**	1086	654	296
Central Office	24	39	28
Community Services	NA	1	59

Technology (General Issues)	120	202	42
Town	211	336	136
TOTAL	3099	3519	1852

*Jan. 11, 2011
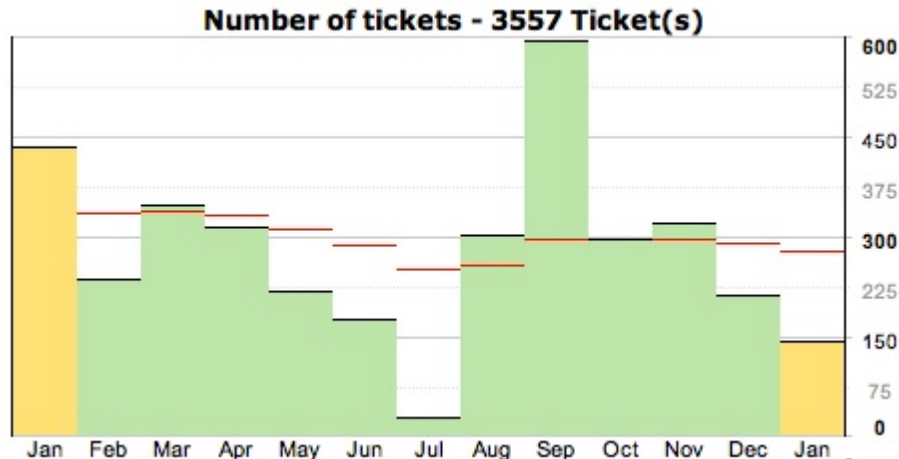
HelpDesk Tickets - Monthly view from Jan. 2010 to Jan 2011

Note: Typically help desk tickets run approximately 300 per month on average.

Section 3 - Data Management

The Technology Department through our data manager provides the following services to the district:

PowerSchool Management
Store grades at High School
Update Standard Based report card at Pond Cove
Maintain the PowerSchool portal (Parent & student access to PowerSchool)
Create custom systems for various departments (Guidance, Main Office, Nurse, lunch etc.)
Assist in creating High School Schedule
Troubleshooting many PowerSchool issues
Develop trainings and resources for staff on using PowerSchool and PowerTeacher
Import all assessment data into PowerSchool (MEA, NWEA, DRA2, PSAT, local assessments, etc.)
Develop system for logging health office visits and a custom reports on this visit data
All inclusive student health record in PowerSchool
Refine registration pages and process for adding new students
High School skip list that sends email to students that have been reported as being absent to a certain classes and they should see the assistant principal to resolve the issue.
PowerSchool/lunch system integration that sends emails of outstanding lunch balances due to parents.
PowerSchool documentation and support website

State Reporting
Work with schools and various departments to complete State Reports (Oct. & April enrollments, Dropout & Completers, End of year processing of graduates in Infinite Campus, ADA/ADM attendance reporting, etc.)
Exporting PowerSchool Data into State's Infinite Campus system
Ensuring accuracy of data on all State reports

Custom Screens and Reporting

The Data Manager is responsible for creating a data system like *Pearson Inform* or *Just 5 Clicks* for assessment data. These commercial system would have cost our district approximately $20,000 to implement.
This system is tied to data already in PowerSchool and is designed to work seamlessly through PowerSchool.
Custom reports are available for all schools and now even to parents
Report cards at all school are delivered electronically via the PowerSchool Portal
All assessment data is available to administrators, teachers, students and parents

NWEA (Northwest Evaluation Association)
Export data from PowerSchool to create roster files for NWEA testing. This needs to be done for each testing term (fall, winter and spring)
Download roster file from NWEA and setup server for testing session
Work with staff to create NWEA testing schedule, class list etc. for each testing room
Train other proctors and proctor testing sessions
Upload data to NWEA at end of each day
Close testing window, order reports, download data and import into PowerSchool

Student Support Team - Student Intervention Team
Created special area in PowerSchool that is used by the Student Support Team (SST) at Pond Cove - In this area all information about work with individual students and their personal learning plans is included. This information is available to SST members, administrative staff and the childs classroom teacher.
Created combined profile screen for High School Intervention Team that shows attendance, grades and assessments in one place.

Through the Data Manager, we are able to provde access to all data (grades, attendance, assessment, health, etc.) in one place, through our local PowerSchool student information system. This data is secure within this system and is accessible with the rights assigned to each end user through their login. Example: A classroom teacher would have access to to only their students grades and assessments but an administrator or Guidance staff would see all students in their building.

Even though data is located all in one system - sometimes specific reports are not available to gives us views of the data that our district needs. Through our data work we have been able to create the custom views of this data that work for us to examine and hopefully improve teaching and learning.

Data that used to be in file cabinets in Guidance and Main Offices is now available for staff through PowerSchool and a computer. Here is a screenshot of the assessment data available on a current high school junior from PowerSchool:

CEHS

Enter New Test: ACT ⬍ Submit

Test	Test Date	Grade Level	Description
MEA_Writing	3/1/2004	4	MEA Writing - Maine Educational Assessment
MEA_Reading	3/2/2004	4	MEA Reading - Maine Educational Assessment
MEA_Math	3/3/2004	4	MEA Math - Maine Educational Assessment
MEA_Science	3/4/2004	4	MEA Science - Maine Educational Assessment
MEA_Reading	3/6/2006	6	MEA Reading - Maine Educational Assessment
MEA_Math	3/7/2006	6	MEA Math - Maine Educational Assessment
CEMS_Writing_Prompt	10/1/2006	7	Local Common Assessment Writing Prompt
NWEA_Reading_V3	12/11/2006	7	NWEA Reading - Measure of Academic Progress - 2005 Norms
NWEA_Math_V3	12/12/2006	7	NWEA Math - Measure of Academic Progress - 2005 Norms
MEA_Math	3/6/2007	7	MEA Math - Maine Educational Assessment
MEA_Reading	3/7/2007	7	MEA Reading - Maine Educational Assessment
NWEA_Reading_V3	9/20/2007	8	NWEA Reading - Measure of Academic Progress - 2005 Norms
NWEA_Math_V3	9/21/2007	8	NWEA Math - Measure of Academic Progress - 2005 Norms
CEMS_Writing_Prompt	10/1/2007	8	Local Common Assessment Writing Prompt
MEA_Math	3/4/2008	8	MEA Math - Maine Educational Assessment
MEA_Reading	3/4/2008	8	MEA Reading - Maine Educational Assessment
MEA_Science	3/6/2008	8	MEA Science - Maine Educational Assessment
CEMS_Writing_Prompt	5/1/2008	8	Local Common Assessment Writing Prompt
NWEA_Reading_V3	5/9/2008	8	NWEA Reading - Measure of Academic Progress - 2005 Norms
NWEA_Math_V3	5/12/2008	8	NWEA Math - Measure of Academic Progress - 2005 Norms
NWEA_Math_V4	10/28/2008	9	NWEA Math - Measure of Academic Progress - 2008 Norms
NWEA_Reading_V4	10/29/2008	9	NWEA Reading - Measure of Academic Progress - 2008 Norms
NWEA_Geometry_V2	5/29/2009	9	Northwest Evaluation Association End-of-Course Math Test - Geometry - Version 2
NWEA_Reading_V4	6/5/2009	9	NWEA Reading - Measure of Academic Progress - 2008 Norms
NWEA_Reading_V4	10/15/2009	10	NWEA Reading - Measure of Academic Progress - 2008 Norms
NWEA_Math_V4	10/15/2009	10	NWEA Math - Measure of Academic Progress - 2008 Norms
PSAT	10/17/2009	10	Preliminary Scholastic Achievement Test
NWEA_Algebra_II_V2	6/2/2010	10	Northwest Evaluation Association End-of-Course Math Test - Algebra II - Version 2
NWEA_Reading_V4	6/3/2010	10	NWEA Reading - Measure of Academic Progress - 2008 Norms
CEHS_Reading_Assessment	10/6/2010	11	CEHS Reading Assessment

As you can see (from illustration above) we have a window of assessments back to 4th grade on this particular high school junior. Data on individual student is available to administrative and teaching staff in the district and also to parents and students through our PowerSchool portal. The Data Manager has created special reports to look at assessment data and compare this data from many different views. The Data Manager will be demonstrating the many views our staff have of this data at the school board workshop in January.

Section 4 - Technology Integration

Technology Integration involves professional level support for our school staff.

This pyramid illustrates the support systems that need to be in place for technology to be successful in the school environment. This diagram comes from a colleague - Joe Makley who is the Technology Director of Portland Public Schools. The foundations of *Reliable Systems*, *Easy to Use Tools*, *Compelling Reason*, *On-Site Support* and *Training* need to be in place before we can see *New Practice* evolve. We've worked hard in Cape Elizabeth to build these foundational pieces so that technology can be used to support teaching and learning. We have also made a strong effort to provide easy to use tools and systems (Ex: teacher web page templates, single-sign on, etc.) as one of the foundational pieces that must be in place for us to impact practice.

What is a Technology Integrator…

Defining Technology Integration

"Technology Integration is the use of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving. Generally speaking, the curriculum drives the use of technology and not vice versa."   -Wikipedia

"Technology integration is the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools. Technology resources are computers and specialized software, network-based communication systems, and other equipment and infrastructure. Practices include collaborative work and communication, Internet-based research, and more..."

"Integrating technology is what comes next after making the technology available and accessible."
                    -**Technology in Schools,** *Suggestions, Tools and Guidelines for Assessing Technology in Elementary and Secondary Education*

SAMR –
Technology Integration Model

SAMR - Substitution, Augmentation, Modification and Redefinition

"SAMR is a model of technology integration comprised of four levels, two enhancing levels: substitution and augmentation, and two transforming levels: modification and redefinition." This model, developed by Dr. Ruben R. Puentedura, Founder and President of Hippasus, an educational consulting firm used by the MLTI program in Maine. Dr. Puentedura states, "The SAMR model was developed to answer the question of what types of technology use would have greater or lesser effects upon student learning." The greatest impact or value on teaching and learning happens at the upper levels of Modification and Redefinition.
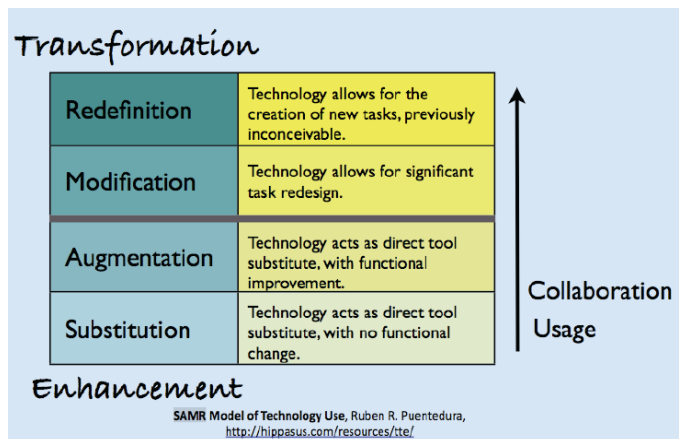
By **value** we should mean whether learning is enhanced, made more accessible, more interesting, more motivating. More information is available on the SAMR model at this link.

The work of our Technology Integrators is to help staff get to the *Modification* and *Redefinition* levels of integration to add value to the curriculum.

What does effective technology integration look like?

"It doesn't looks like...
A technology lesson. It isn't a lesson on how to use PowerPoint or Excel. It isn't a lesson that's all about 'how to' and 'be sure to include 6 slides and 3 pictures and a theme with transitions'

It does look like...
A classroom lesson, unit or project that includes the use of technology. Technology use should be appropriate, add to the value of the lesson, actively engage students and generally support the goals and standards addressed in that particular lesson, unit or project.

When does technology fail?
When we expect it to do our job. It's not magic and it's not a babysitter. Software that you can sit a student in front of and tell to 'just use' then walk away is more likely than not low-end technology use. Technology that succeeds does so because an educator has used it well as an educational tool, integrating into his or her classroom instruction. *The magic is in the teacher, not the technology.*"

-From an education portfolio - Effective Technology Integration by Pam

Technology Integrator work in Cape Elizabeth Schools

Technology Integrators provide a resource for staff to help incorporate technology in classrooms throughout the district. They provide training and support for: the MLTI laptop program, teacher websites, software applications, collaborative learning (Google Apps, blogging), digital storytelling, podcasts, video conferencing, web resources, as well as projectors and interactive white boards.

Technology Integrators...

- Collaborate with teachers to support their use of technology in delivery of curricula through a variety of instructional methods.
- Provide teachers the support they need to modify their instruction, and tap into the potential of technology to enhance teaching and learning.
- Create learning resources for teachers, staff and students. These may include Web sites, tutorials, interactive programs and databases that support teachers in integrating technology.
- Participate in the selection of appropriate technological resources to augment class content.
- Assess technology skill levels of students, teachers and staff.
- Train teachers to use technology and software effectively
- Assist students with technology-related activities or projects.

What's Happening at **Pond Cove School**

- Video reading recovery lessons for reading recovery teachers to help them analyze and critique their lessons.
- Video student presentations to share with families through teacher websites.
- Provide Smart Board training for teachers and Ed techs.
- Provide Notebook lessons for use with the Smart Board to enhance the Everyday Math Curriculum.
- Perform basic troubleshooting for Smart Boards, computers, and other technology.
- Prepare lessons and create games in different areas of the curriculum.

- Teach lessons using the mobile lab in classrooms to reinforce and review concepts taught in class.
- Helped teachers simplify the way they did student placement in classes from using Post-It notes and bulletin board paper to using the Smart Board instead.
- Helped teachers simplify the supply ordering process by creating a spreadsheet in Google Docs that could be shared among the teacher teams.
- Created websites with a collection of interactive math resources to extend student learning at home.
- Helped teachers across different disciplines and schools create and use a wiki to collaborate and plan a special fourth grade arts program.
- Helped teachers make the transition from First Class to Google Apps for e-mail and teacher websites.
- Provide individual, small group, and large group technology training and help.
- Created surveys using Google forms and spreadsheets
- Inform staff of the availability of services in Google Apps, educate them on how these services can be beneficial to them, and train them to use the new services.
- Serve as a contact person to act as a liaison between the school and the technology department.

What's Happening at Cape Elizabeth Middle School

School Wide
- Training and seminars to all staff for Google Apps, LanSchool
- Assistance and one-on-one training for teachers for Google Apps (doc, calendar, websites), Smart Boards, MS Office, Flip cameras, scanners to name a few
- Provide guidance and assistance with the implementation for technology rich lesson
- Trained and assisted with the creation of middle school blog as well as providing support to other staff bloggers
- Evaluated and recommended various web resources for back channels, chat rooms and drop boxes
- Creating and implementing student e-portfolios
- Helped with MLTI laptop deployment

5th Grade
- Introduction to Google Apps Training (includes login, document creation, editing, sharing)
- Assisted with creation of presentations with various software (create, edit, save fromats and sharing)
- Provided training to students in use of iMovie for Book Talks

6th Grade
- Introduction to Google Apps Training (includes login, document creation, editing, sharing)
- Provided training to students in use of iMovie for News reports from Civil War Battle Fields

7th & 8th Grade
- Introduction to Google Apps Training (includes login, document creation, editing, sharing)
- Demonstrated and provided assistance for the creation of brochures for SS projects
- Assistance with student response systems

World Language
- Assisted with the creation of: podcasts, videocasts, file conversion from cassette tape to digital format
- Recommended and review procedures for 8th grade assessments
- Provide resources for creation of lessons focusing on the auditory nature of WL

Allied Arts
- Help to incorporate technology into class (via video, digital photos, and creating virtual field trips)

- Demonstrate cloud resources for photo editing, reflection and feedback
- Provide resources for creation of lessons focusing on visual, physical and auditory nature of the AA.

What's Happening at Cape Elizabeth High School

- Assistance and one-on-one training with new technology equipment (Flip video cameras, iPads, etc.)
- Assistance with video editing software and sharing videos via web or email
- Assist with the creation of blog website for teachers and classes
- Provide resources to create surveys for exit polling on election day. Using Smart Board to present and organize results
- Provide training and support for use of document camera in classroom
- Providing support for use of our online content management system - Moodle
- Provide systems and support to create RSS feed collections for various news sources (iGoogle pages)
- Provide support for software to record and produce podcasts (Audacity, NoteShare)
- Google Apps Training and support for staff (includes login, email, teacher websites, document creation, editing, sharing, spreadsheets, and surveys)
- Using excel charts/graphs to organize data collected about students
- Screencast of CEEF grant application
- Assist teacher and students in creation of short story podcasts
- Assist journalism class with online version of the Cape Insight
- Bookshare and Kurzweil work to help prepare materials for visually impared students
- Assist IS staff with various software programs specific to Instructional Support (Kurtzweil, WriteOutLoud and CoWriter, MacSpeech, Comic Life, Scientific Notebook, etc.)

Section 5 - Professional Development

The Technology Department has offered a weeklong professional development opportunity for staff called "Cape Academy" for the past 10 years. Over the last two years Cape Elizabeth has combined with South Portland to provide this professional development opportunity to both districts. The complete program descriptions with offerings for last summer can be found by clicking here. A condensed version of the offering is also included in the appendix. Last summer we had a total of 87 (62 Cape and 23 SP) staff attend our various workshops. Attendance at Cape Academy increased for Cape staff this year probably because of the many Google offerings and move to Google Apps for Education.

Three Google Apps workshops were presented to each school staff on the Monday workshop days last winter/spring. This gave all staff in each building an introduction to these new Google tools and the changes that were coming for this current school year.   A workshop was also presented to all school staff during one of the opening workshop days in August 2010. This workshop introduced the AESOP sub-calling/absence software and also provided an overview to our new email system based on Gmail.

Sometime professional development is provided through resources that we put together in other ways. An example of this is our "Moving to Gmail FAQ" website. This site containing the most frequently asked questions about moving to our new email system and gave answers and instructions on how to make the move. Many staff took advantage of this online resource. A link to the Gmail FAQ web site is available here. I've also provided a screen shot of this website in the appendix section of this report. This website was posted and available to staff a full 60 days before we made the move to Google's email system. From the survey results included later in this report, these sessions and resources helped over 80% of our staff to feel comfortable with the transition to Google tools.

This current school year the Technology Integrators and Coordinator have been available after school for drop-in technology help sessions at each schools at least once a month. The integrators do this more often in each of their respective buildings. These drop-in sessions make available four people from the technology staff as a resource for any assistance required or technology related questions.

The transition to new teacher webs sites this year has been a major project for the technology staff. Teacher web sites used to be posted through our old FirstClass email system. With the move to Google, we needed to come up with an equivalent system. Google Sites provides this system with much more features than FirstClass. We, as a department, believe that the technology has to be easy to use or it will not be used by staff. Google allowed for us to create templates and then shared them with all our users. This is the approach we took to assist staff in this transition to new web sites. We began the process of developing these templates by meeting with each building administrator and determining what was critical components for teacher web pages at their building. The technology staff met and built these templates including the criteria outlined by building administrators. These templates included some of the following features:

- Common elements of design (recognizable brand for Cape Elizabeth Schools)
- Similar look and feel for all staff so parents can easily access and find information.
- Included basic common content (Links, contact information, class/homework calendar, etc.)

The technology staff believe that teachers do not need to be web designers. It's important for our teachers to be able to simply add the specific content for their particular class or subject. These Google templates provided a design and structure for the beginning of each teacher's website. Training was provided to get all staff started on their new website in one on the Monday workshop (Spring 2010) and, of course, our technology integrators were available for one-on-one help. With these efforts by the technology staff a large majority of teachers have created teacher websites using Google.

Technology Staff Survey – Dec. 2010

A survey of all teaching staff was conducted this past December in an effort to gather data on technology in Cape Elizabeth schools. 106 staff members completed the survey with representation from all three schools. This information will be used to help with budget development, technology planning and future professional development.

A full copy of the survey results is included in the appendix of this report. Here is a summary of some interesting facts from this survey:

- 51% of staff consider themselves average technology users, 27% savvy or better, and only 22% consider themselves technology challenged
- 61% of staff use technology daily or almost daily and 20% use technology weekly with their classes
- The three greatest obstacles faced to integrate technology in classrooms are "Lack of time" (69%), "Lack of necessary skills" (39%) and "Lack of training" (32%)
- "Lack of Technical support" was listed as an obstacle by only 6% of our staff. This seems to indicate that the technology staff are doing a good job in providing support to our users in the district
- Top three technology used in classrooms included "Web Resources "(68%), "My Teacher website" (62%), "Projectors" (61%)
- 18% of staff seek assistance from our Technology Integrators weekly and 34% monthly
- 64% of staff prefer "one-on-one technology training sessions" (just what our Technology Integrators can provide)
- 45% of staff have participated in some form of online training
- 81% of staff are now comfortable with the transition to Google Apps for education this year
- Three most used digital tools used by staff for personal use are "Google Tools" (80%), "Digital Cameras" (74%), "Social Networks" (42%)
- 46% of staff support one-to-one access to technology (33% of high school staff support one-to-one access)

Section 6 - Future Direction and Resources

The Horizon Report

The *Horizon Report* series is the most visible outcome of the New Media Consortium's Horizon Project, an ongoing research effort established in 2002 that identifies and describes emerging technologies likely to have a large impact on teaching, learning, research, or creative expression within education around the globe.

Key Trends from the 2010 - K12 Edition:

- Technology is increasingly a means for empowering students, a method for communication and socializing, and a ubiquitous, transparent part of their lives.
- Technology continues to profoundly affect the way we work, collaborate, communicate, and succeed. Information technologies impact how people work, play, learn, socialize, and collaborate.
- The perceived value of innovation and creativity is increasing. Innovation is valued at the highest levels of business and must be embraced in schools if students are to succeed beyond their formal education.
- There is increasing interest in just-in-time, alternate, or non-formal avenues of education, such as online learning, mentoring, and independent study.
- The way we think of learning environments is changing.

Technologies to watch from the 2010 - K12 Edition:

On the near-term horizon — (within the next 12 months)

- Cloud computing
- Collaborative environments.

Cape Elizabeth Schools with the adoption and move to Google Apps for Education have implemented the near-term horizon technologies of cloud computing and collaborative environments.

The second adoption horizon - (two to three years out)

- Game-based learning
- Mobiles

Full text of the Horizon Report- K12 Edition can be found here: Horizon Report 2010 - K12 Edition

Reference Materials

NOTE: The online version of this document contains live links to the resources below:
Cape Elizabeth School District Technology Plan 2010-2013 - Approved June 12, 2010 by DOE

National Education Technology Plan - Revised 2010

International Society for Technology in Education

- 8 Ways Technology is improving Education - Don Knezek, the CEO of the International Society for Technology in Education, compares education without technology to the medical profession without technology.
- Essential Conditions... Necessary conditions to effectively leverage technology for learning

National Educational Technology Standards

- [For Students](#)
- [For Teachers](#)
- [For Administrators](#)

"[Growing Up Digital, Wired for Distraction](#)" - New York Times, Nov. 21, 2010

"[Addressing Tech A.D.D.: Technology Attention Deficit Disorde](#)r" - From Now On, The Educational Technology Journal, Jamie McKenzie

[25 Questions to ask about Technology](#) - Jason Ohler, www.jasonohler.com

Section 7 - Appendix

Questions Submitted by the Teaching & Learning Committee:

1. Include information on Google Apps vs. Microsoft Office. Why this direction? Cost savings? Benefits?

Google currently offers their hosted web-based suite of applications to schools as part of the Google Apps for Education free for educational institutions. This same suite of tools would cost others $50 per user per year. The tools tools included are: Gmail, Docs (word processing, spreadsheet, presentation, drawing), Sites, Calendar and plus more tools to come in 2011. Google Docs can be a substitute for software tools offered by Microsoft Office. Licensing for Microsoft Office is per computer and would cost the district approximate $52,000 (1000 computers at $52/license) to upgrade to the current version.

Gmail is also a part of Google Apps for Education that has replaced our previous FirstClass email system. Firstclass was a good email system that has served the district well for approximately 15 years. Gmail is a hosted web-based email system which means servers and support are all handled by Google. All that is needed to access our Cape Elizabeth Gmail is an Internet connection. The switch to Gmail save te district $5000 in annual licensing fees we were paying for FirstClass and also the cost of servers and maintenance. Teacher web pages were previously published through our FirstClass email server. These teacher web pages have been moved to Google Sites with easy to use templates and many additional features and tools. Many school districts, universities and businesses have or are planning to move to Google for these similar services.

To summarize, here are the main reasons for switching to Google Apps for Education:

- To free up technology resources (staff, server, backup, etc.)
- Ease of deployment - No software to install,
- Upgrades and new features delivered by Google
- Web based system are compatible with all types of computers and web browsers
- Google Tools are design to work and integrate well together (Docs, Calendar, Sites, etc.)
- Ease of use
- Reliability (Google claims a 99.9% uptime)
- Easy integration with mobile devices (Smart phones)
- Cost savings - FREE (Google states they are committed to providing these tools to education for free)
- Google Docs provides online storage of documents (online backup)
- Access to email and documents from any computer

2. Include budget data on what we currently spend on technology.

District Technology budget includes: (All figures rounded for purposes of this report)

District Staff - Salaries & benefits -	$298,000
Professional Services	$ 14,000
Staff Development	$ 3,500
Equipment Repairs	$ 7,000
Internet Connection	$ 3,000
Supplies	$ 3,500
Equipment Leases (3 leases)	$ 175,000
Software	$ 24,000

Other Technology funding at Schools   (From school technology funding 2010-11)

Salaries & Benefits - Integrators	$ 75,000
Elementary Lab Ed Tech	$ 27,000
Elementary Tech Supplies	$ 1,000
Elementary Tech Software	$ 1,350
CEMS Tech Supplies	$ 4,000
CEMS Tech Software	$ 16,500
CEMS Tech Equipment	$ 600
CEHS Tech Supplies	$ 5,500
CEMS Tech Software	$ 5,700

3. What specific technology equipment, software do we provide for Instructional Support?

Equipment: Laptops for staff, laptop cart for students at HS, laptop for students through IEP process, Braile printer, Cameras and Video Camcorders, Psychologist testing/scoring computers, scanners, iPads, iPod Touches, Smart Boards, Projectors

Software: CoWriter, WriteOutloud, ReadOutloud, DraftBuilder, Jaws, Pro Lexia, Plato, BoardMaker, Earobics, Inspiration, Kurtzweil 3000, Dragon MacSpeech Dictate, Missing Sync, Picture-It, Proloquo2go, WIAT scoring Assistant II & III, WISC-IV, WJ III, MicroType, Scientific NoteBook, TextCloner Pro

Services provides to IS: Support for web based Plato and Lexia systems for both IS and regular education staff, Assisting IS with IEP determinations that involve technology (hardware or software), General consultation with IS staff for website, surveys, software and hardware issues

A great example of cost savings: A recently acquired iPod Touch with a specialty application for IS, Proloquo2go (our cost of about $500 for both) can replace a Dynavox system that would cost the district over $6,000. This communication tool is currently being used by a middle school student.

4. Include Data from grants/funds provided by other organizations for technology. (CEEF, PCPA, MSPA, etc.)

Cape Elizabeth schools have benefited from the generous support of many organizations and even the State of Maine.

MLTI - Provides laptop computers to all 7th and 8th students grade at our middle school plus all staff 7-12.   Middle school has 362 MLTI laptops at a value of approximately $1,000 each (including software). The high school has an additional 67 MLTI laptops issued to staff. This equals a total of 429 MLTI laptops valued at approximately

$429,000. In addition to the laptops came a professionally engineered and installed wireless network in both the Middle and high school valued at between $30-$50,000.

CEEF has provided several grants for technology recently. Here is some data from the last three grant cycles:

Fall 2010	Serving Technology Natives - 5th Grade	$5,900
Spring 2010	Technology in the Elementary Classroom	$7,476
	Technology for High School Social Studies	$2,235
Fall 2009	Technology for the Elementary Classroom	$15,000
	Science and Technology in 21st Century Schools	$11,500
	Sixth Grade Podcasting	$1,651

PCPA Pond Cove Parent's Association

Provided the initially funding for a mobile laptop cart at Pond Cove (2005). Funded projectors, Smart Boards, cameras, speakers and other technology for classrooms.

Pond Cove currently has Smart Boards and mounted projectors in 30 classrooms. All classrooms in grades 1-4 have Smart Boards and mounted projectors installed as of the 2010-11 school year.   Of these 30 classrooms with Smart Boards - 15 were funded by PCPA, 9 by CEEF, 4 by the District Tech budget and 2 by Instructional Support. Smart Boards cost approximatelty$1200 per classroom. Mounted projectors for these classrooms also were provided by PCPA (17), CEEF (11) and the Technology budget (2). Cost to provide a projector, mounting supplies and electrical work is approximately $1,000 per classroom.

Middle School Parent's Association

Middle School currently has 9 Smart Boards [Funding Sources: Tech Budget (5), MSPA (2), IS (1) and Art (1)] installed in classrooms. The Middle School also has 13 Mimios and wireless slates. Mimos are a different brand of Interactive whiteboard similar to Smart Boards. 12 of the 13 Mimios were provided by CEEF grants and one by the Tech Department. There are 33 mounted projectors in various classrooms at the middle school. Most of these projectors were provided by CEEF and Tech Dept funding. There are five additional classrooms that need mounted projectors and to complete the middle school.

The high school has mounted projector in all Science and Social Studies and half of the foreign language classrooms . Through the HS library all other classrooms that desired projectors are provided them on carts. The high school also has Smart Boards mounted in three classrooms.

Appendix Data included with this report (Click links below to see this data):

- Cape Elizabeth Town-School Network
- Technology Survey - Cape Elizabeth Staff (Jan. 2011)
- Cape Elizabeth/South Portland Summer Academy - August 9-13, 2010
- Gmail FAQ Website