



District Technology Plan

2008-2011

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Introduction

This strategic technology plan was written for the Cambridge Public Schools District using the Educational Technology planning guidelines provided by Massachusetts Department of Education (DOE) and the National Educational Technology Standards (NETS) published by the International Society for Technology in Education (ISTE). These guidelines helped direct the efforts of a Technology Committee to examine the current status of educational technology in the district and map a course for future technology investments and initiatives. The plan includes a vision and mission statement, goals for K-12 educational technology integration, infrastructure and professional development. The plan outlines an effort to make technology accessible to every student and to assist teachers in finding appropriate uses of the technological tools to enhance the curriculum and boost student engagement. This plan is intended to serve as a guide for decision-making and an instrument to monitor and evaluate the progress made toward our goals. The DOE will use these guidelines to gauge the progress of districts' implementation. Annually, the Cambridge Public Schools submits an update of its Technology Plan and goals to the Massachusetts Department of Education. Updates are available on the Massachusetts Department of Education website <http://www.doe.mass.edu>.

This plan was written with the input from many stakeholders. Each of the committee members collected data from all the stakeholders listed. Surveys were conducted to gain input from teachers and students. A priority of the plan was to gather information from all stakeholders in order to formulate critical elements to produce the goals identified. Special thanks go to the members of the district strategic technology planning committee, who provided the expertise, vision, knowledge and time in the creation of the plan.

Executive Summary

The State Department of Education requires an approved technology plan in order to receive state and federal funding for technology. This requirement has two components. The first component being the online technology plan distributed by the DOE and filled out annually. The second is the need for the district to have a Strategic Technology Plan that outlines six benchmarks designated by the Massachusetts Department of Education and E-rate. Please note that the DOE is currently updating the requirements with expected changes to be distributed in 2008-2009.

Benchmark 1: Commitment to a Clear Vision and Mission Statement

Benchmark 2: Technology Integration

Benchmark 3: Technology Professional Development

Benchmark 4: Accessibility of Technology

Benchmark 5: Infrastructure for Connectivity

Benchmark 6: Access to the Internet outside of the School Day

This strategic technology plan has at its core the improvement of student achievement through enhanced instructional resources united with the development of improved communication and operational organization. This plan views technology as an essential tool for teaching and learning. The plan sets forth rational, well-organized, and structured goals for integration of technology into the core competencies of the schools from the elementary through the high school levels. The plan reflects research and experiences of the stakeholders: students, teachers, parents, administrators, and the community.

We are recommending that we focus the next three years, on developing a comprehensive classroom teacher technology training program in conjunction with the principals' school-based professional development plans, recognizing this will need to be prioritized in context of other needs in the district. Effective learning requires classroom teachers who are aware of and comfortable with the technologies they are expecting their students to learn and use. Professional development in relevant technologies must guide the learning process. Continuous review of what teachers need to know and what resources they must have to teach effectively is essential. Making professional development available in a timely and cost-effective manner is crucial to the integration of technology into the curriculum.

Technology integration needs to be an essential component of classroom teachers' supervision and evaluation. Aside from the professional development of teachers already hired, an expectation of technology literacy skills is preferred when hiring new teachers. The district will, in the coming years, give attention to the professional development of school-based technology teachers, assistants, and/or librarians to provide local, instructionally embedded support of faculty using technology in the classroom.

Another important recommendation by the committee is development and implementation of a *CPS academic portal*. A *portal* is a password-secure website that serves as a gateway to a set of tools, applications and information for teachers, administrators, staff, students and parents. The CPS academic portal can be a tool to strengthen the bond between school and home while also serving as a gateway to various education-related information and data for employees

Action Items of Technology Plan

- Develop and implement the CPS academic portal solution over the next three years;
- Insure that all teachers and staff have anywhere access to CPS resources, online professional development and Internet resources;
- Establish wireless technology in the school buildings, where appropriate within buildings;
- Develop a five year replacement cycle for the updating of elementary and secondary computer labs and classroom computer hardware with up-to-date educational software applications;
- Purchase wireless laptops on mobile cart to bring increased computing capacity to the classroom setting;
- Establish additional technology-enhanced classrooms with interactive presentation equipment;
- Maintain and improve the capability in each school building of at least one person with the training and / or skills to be able to provide technical support, communicate with field repair technicians, work with teachers and students and act as the spearhead for the integration of technology into the curriculum.
- Develop support staff and administrator training throughout the year.
- Address data quality issues by establishing data quality standards and end user training
- Improve infrastructure by implementing a centralized backup solution and bandwidth/packet optimizing technology
- Implement systems to enable CPS to meet state and local records retention requirements

The Long-range Technology Planning Committee and the school-based Technology Councils recommend that this three-year technology plan be reviewed and revised annually to assess implementation progress. Since the speed of implementation cannot be predicted, the annual review should take into consideration the actual state of the technology hardware, the curriculum, and the staff competency levels achieved each year, and any unanticipated changes in technology during the previous year. In addition, support personnel will need to be reviewed on an annual basis to ensure proper curriculum, maintenance, repair, and network operation functions are being met in a timely manner.

History

A long range planning committee created the original TECH 2000 technology plan that was published in 1995. All of the goals set forth in this document have since been realized. Each year since 2000, the district submitted a Technology plan that outlined year by year the goals of the district, the current status including professional development and infrastructure. As of 2007 all elementary schools have at least one up-to-date computer lab, a well-equipped library with circulation automated, at least one computer per classroom with printing capabilities and updated licensed software. During 2006-2007 through additional monies granted for technology, interactive whiteboards and LCD projectors were placed in schools. To support the student achievement additional software programs were purchased at both the elementary and secondary levels and mobile laptop carts with twenty or more laptops were placed in each middle school.

PART I: PLAN FOUNDATIONS

Benchmark #1: Commitment to a Clear Vision and Mission Statement

A. Cambridge School District's Strategic Vision

The long-range vision for technology in the Cambridge Public Schools is to empower students to successfully negotiate the highly technological, information oriented society of the 21st century. All district personnel will use current technology (effectively) to increase productivity. This vision will focus on the continued development of a district-wide learning community that includes all students and all district personnel.

The School Committee and Superintendent have jointly developed goals for the Cambridge Public Schools that are accompanied by measures of progress. The goals are intended to provide improvement targets and guidance for teaching/learning, student achievement, and school district operations. The goals are focused on the challenges of providing a creative and rewarding high quality education, increasing achievement for all students, closing the achievement gap, and surpassing state and federal requirements.

The goals will be carried out through a creative approach based upon:

- Excellence in training
- High standards of performance for all staff and students
- A diverse workforce fully engaged with students
- Supportive and demanding professional development for all staff
- A culture of learning that requires of students full engagement, authentic assessment, citizenship development, active appreciate of the arts, and full participation in the CRLS community and the city.

Parents and community partnerships are vital to accomplishing these goals, and the Cambridge Public Schools are determined to reach out further than ever before, well beyond the doors of the school on behalf of a better education. It takes a committed staff and community to help students develop as thinkers, doers, appreciators, enjoyers, and contributing citizens of their school, community and society.

District Strategic Goals for 2007 - 2008

These goals will be carried out through a creative approach based upon:

- Excellence in teaching
- High standards of performance for all staff and students
- A diverse workforce fully engaged with students
- Supportive and demanding professional development for all staff
- A culture of learning that requires of student full engagement, authentic assessment, citizenship development, active appreciation of the arts, and full participation in CRLS community and city.

Goal 1: Raise achievement levels for all students and close the achievement gap.

A: District wide performance on English Language Arts (ELA) and Mathematics (Math) MCAS (state tests) will increase over a two year cycle.

B: All students will read at grade level by third grade.

C: All schools will make AYP.

D: All CRLS students will graduate.

Goal 2: Establish a system for longitudinal assessment of student progress

A: Design and implement a system to determine individual student growth over time.

Goal 3: Develop a strategic plan for education to guide decision making for the next 3 to 5 year period.

Benchmark #1: Commitment to a Clear Vision and Mission Statement

Goal 4: Nurture and grow partnerships with area art, academic, science, and youth organizations.

B. Strategic Technology Plan Overviews

1. Technology Vision and Mission Statements

Vision: The long-range vision for technology in the Cambridge Public Schools is to empower students to successfully negotiate the highly technological, information oriented society of the 21st century. All district personnel will use current technology (effectively) to increase productivity. This vision will focus on the continued development of a district-wide learning community that includes all students and all district personnel.

Mission: The mission is to ensure that all students, teachers, administrators, and staff have access to and become proficient users of technology and that technology becomes a powerfully integrated and routinely used tool in the Cambridge public school system.

2. Philosophy of Educational Technology

The Cambridge Public School District is committed to utilizing technology resources to enhance and enrich learning opportunities for students and to increase the effectiveness of its educators and support staff. These resources will be used to enhance the delivery of instruction, to support all areas of the curriculum, and to support the educational needs of students, staff and community. The conversation about student achievement must focus on preparing students to become skilled in the use of technology and be prepared for higher education or entering the work force of the 21st century.

3. District Technology Committee

The district has a technology team with representatives from a variety of stakeholder groups. The technology team has the support of the district Leadership Team and Administrative Review Team.

Long Range Technology Committee Members & Data Gatherers

Dan Monahan	Middle Grades Science Mentor Teacher
Diane Johnson	Coordinator, Financial Operations and Purchasing
Diane Paradis	Vocational Coordinator, Rindge School of Technical Arts, Cambridge Rindge and Latin School
Douglas McGlathery	Technology Staff Developer/ Mathematics Teacher, Cambridge Rindge and Latin School
Eileen Frerichs	Assistive Technology Specialist, K-12
Gina Roughton	Technology Integration Specialist, Cambridgeport School
Jaye Alper	Library Media Specialist, Cambridge Rindge and Latin School
Jeff LaPlante	Chief Technology Officer
Joan Stern	Coordinator, Library Media Services
Dr. Joanne Krepelka	Coordinator, Educational Technology
Dr. Joe Petner	Principal, Haggerty School
Kevin McGonagle	Technology Integration Specialist, Haggerty School
Melanie Nash	Manager, Teachers' Resource Center
Pat Beggy	Principal, Morse School
Peter Mili	Mathematics Teacher, Cambridge Rindge and Latin School
Richard Whitehead	Program Manager, Special Education
Russell Cron	Administrative Intern, Cambridge Rindge and Latin School

Senior Staff Review Committee

James Conry	Chief Financial Officer
James Maloney	Chief Operating Officer
Dr. Carolyn Turk	Deputy Superintendent

Benchmark #1: Commitment to a Clear Vision and Mission Statement

The stakeholders from which data was gathered:

Jean Sullivan	Coordinator, Accounts Payable
Deb Sercombe	Principal, Amigos School
Mary Eirich	Principal, Baldwin School
Dr. Mary Cazabon	Director, Bilingual Education
Casimer Badynee	Principal, Cambridgeport School
Lynn Williams	Coordinator, Guidance, Career & College Resource Center
James Conry	Chief Financial Officer
James Maloney	Chief Operating Officer
Dr. Christopher Saheed	Principal, Cambridge Rindge and Latin School
Kathy Smith	Coordinator, Cambridge Rindge and Latin School Data Center
Jaye Alper	Librarian, CRLS Library
Dr. Carolyn L. Turk	Deputy Superintendent
Lynne Hall	Director, Early Childhood Connections
Ginny Berkowitz	Educational Access
Dr. Joanne Krepelka	Coordinator, Educational Technology
Larry Blondin	Curriculum Chair, English
Christine Fisher	Director, Family Resource Center
Diane Johnson	Coordinator, Financial Operations
Robin Harris	Principal Fletcher Maynard Academy
Jack Mingle	Manager, Food Services Dept
Barbara Boyle	Principal, Graham and Parks School
Dr. Robert J. McGowen	Coordinator, Health, Physical Ed. & Athletics
Dr. Joseph Dolan	High School Extension Program
Wendell Bourne	Coordinator, History & Social Science
Barbara Allen	Executive Director, Human Resources
Kate Conway	Principal, Kennedy Longfellow School
Tim Groves	Principal, King Open School
Carole Learned-Miller	Principal, King School
Linda Mason	Dean of Curriculum & Program, Small Learning Community "C," CRLS
Candace Dunlap	Dean of Curriculum & Program, Small Learning Community "L," CRLS
Filomena Silva	Dean of Students, Small Learning Community "L," CRLS
Damon Smith	Dean of Curriculum & Program, Small Learning Community "R," CRLS
Maxine Barry	Dean of Students, Small Learning Community "R," CRLS
Jamalh Prince	Dean of Students, Small Learning Community "S," CRLS
Kathy Wamness	Dean of Curriculum & Program, Small Learning Community "S," CRLS
Maureen MacFarlane	Attorney, Legal Counsel Office
Joan Stern	Coordinator, Library Media
Nancy McLaughlin	Coordinator, Math Department
Jeff Laplante	Chief Technology Officer
Pat Beggy	Principal, Morse School
Patricia Amenkowicz	Manager, Payroll Department
Joellen Scannell	Principal, Peabody School
Dana Ham	Manager, Plant Maintenance Office
Justin Martin	Director, Public Information Office
Diane Johnson	Coordinator, Purchasing Department
Dr. Michael V. Ananis	RSTA
John Silva	Director, Safety & Security Office
Dr. Melanie Baron	Coordinator, Science
Maryann MacDonald	Executive Director Student Achievement & Curriculum

Benchmark #1: Commitment to a Clear Vision and Mission Statement

Dr. Thomas Fowler-Finn	Superintendent
Students CRLS	Survey
Teachers	Survey
Mary Grassi	Title I
Paulette Jones	Principal, Tobin School
Tina Coyle Fisher	Supervisor, Transportation Office
Melanie Nash	Library Media Specialist, Teacher Resource Center
Judith Contrucci	Coordinator, Visual and Performing Arts
Dr. Sal Trapani	Curriculum Chair, World Language

4. Budget: The district has a line-item operational technology budget that supports the local technology plan. The budget includes staffing, hardware, software, infrastructure, professional development, support, and contracted services. The district leverages the use of federal, state, and private resources.

Current Conditions	Intermediate Steps	Indicators of Success
An annual itemized operational technology budget is provided that is school as well as department based. Additional funding is provided periodically to meet specific educational goals. Through the coordinated efforts of the Educational Technology, MIS, Superintendent, Deputy Superintendent, Chief Operations Officer, Principals and Deans, the needs related to hardware, software, infrastructure, support, professional development and contractual services are identified. Grants are mainly applied for under Title IID and other related state, federal and foundation grant opportunities.	Work with Superintendent and School Committee to maintain an adequate budget dedicated to the implementation of long-range technology plan. Continue to include hardware, software, infrastructure, professional development, support and contractual services in the technology budget. Seeks technology grant funds through the efforts of the grant development, principals, Coordinator of Educational Technology and Chief Technology Officer.	A continual source of funding exists to support the technology plan. The district has a budget that includes staffing, hardware, software, infrastructure, professional development, support, and contracted services. The district regularly applies for federal, state and private grants when appropriate to meet the needs of the district.

5. Evaluation: The district reviews the effectiveness of technological resources aimed at improvement of teaching and learning on a regular basis. Prior to purchases the district analyzes the products and services that meet the identified needs of the district. An evaluation process is in place to monitor the district’s progress in achieving its technology goals and to respond to changes in the technology field.

Current Conditions	Intermediate Steps	Indicators of Success
A variety of methods are used to identify needs and provide solutions: 1. Meeting with principals on regular basis 2. Curriculum departments aimed at sharing current trends 3. Attendance at local conferences to keep current on hardware and software. 4. Surveys of staff and students 5. Electronic discussion and sharing of information by teachers and specialists	This goal is mostly attained.. The development of formal assessment as deemed appropriate. The sharing of data related to the current project such as the findings from the <i>Fastt Math</i> evaluation to be completed by September 2007	The district has an evaluation process that reviews the effectiveness of technology resources in achieving educational goals. All technology related professional development activities are evaluated and the forms collected to assist with future planning.

Benchmark #1: Commitment to a Clear Vision and Mission Statement

via <i>First Class</i> 6. Collaboration between Educational Technology Department and Management Information Systems Department to insure successful implementation of technology related projects Formal evaluation projects are undertaken as needed: (e.g) <i>Fastt Math</i> with Tom Snyder Productions		
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C. CURRENT TECHNOLOGY STATUS

Updated: Student Access to Instructional Computers

The chart below is reflective of equipment as of January 2008. The schools with a 3:1 ratio were rounded up from 2.6 and are very close to reaching the 2:1 ratio.

School	A	B	C	Enrollment	Total Computers (A & B)	Students per Computers (A & B)
Amigos	98	16	0	298	114	3:1
Baldwin	154	11	0	384	165	2:1
Cambridgeport	106	18	5	281	124	2:1
Fletcher Maynard Academy	99	140	5	239	239	1:1
Graham & Parks	119	39	0	428	158	3:1
Haggerty	121	19	0	286	140	2:1
King	97	30	0	245	127	2:1
King Open	150	40	8	510	190	3:1
Kennedy Longfellow	140	55	3	374	195	2:1
Morse	142	0	0	345	142	2:1
Peabody	110	150	0	465	260	2:1
Tobin	84	25	0	331	109	3:1
CRLS/Extension Program	656	202	4	1539	858	2:1
Total Instructional	2076	745	25	5725	2821	2:1
Total Number (A,B,C)	2846					
Percentage of Total Instructional Machines in district	72.94%	26.17%	0.89%			

Type A=High End=Multimedia computers capable of running virtually all current software, including the latest high end video and graphics programs--or equivalent configurations to meet the stated function, Memory= 256 MB RAM or higher

Processor = PC = Pentium 4 or equivalent, Macintosh=G4 or G5 or equivalent

Type B=Average=Multimedia Computers capable of running most software except for the latest video and graphics programs--or equivalent configurations to meet the stated function, Memory= 128 up to 256 MB of RAM

Processor=PC=Pentium 3 or equivalent, Macintosh=G3 or equivalent

Type C=Low End

Multimedia Computers capable of running most current productivity applications--or equivalent configurations to meet the stated function, Memory=Less than 128 MB RAM

Processor =PC=Pentium 2 or lower, Macintosh=Apple Power PC 604e or Lower or equivalent configuration

PART II: PLAN COMPONENTS

Benchmark 2: Technology Integration

Improve student learning and performance through effective use of technology

Elements included are (A) effective teaching and learning practices in all curricula, (B) resources, (C) learning environments, (D) social, legal and ethical issues, (E) administration and (F) other related technology integrated categories.

A. Effective Teaching and Learning Practices

The vision of technology is translated into practice through learning environments characterized by powerful, research-based strategies that effectively use technologies. (NCREL, 2002)

1. Teacher and Student Use of Technology (Within the Classroom-Instructional)

Current Conditions	Intermediate Steps	Indicators of Success
<p>Survey conducted June 2006 using elements of Massachusetts DOE Technology Self-Assessment Tool (TSAT) n=333 responses out of 776 teachers or (43%) return</p> <p>Types of Activities –</p> <p>47% of teachers have a basic knowledge of how to design and develop lessons and activities that integrate technology in a variety of educational settings</p> <p>26% of respondents use instructional technology with students nearly every day</p> <p>34% of respondents use instructional technology with students about once per week</p> <p>21% of respondents use instructional technology with students once per month</p> <p>20% of respondents rarely or never use instructional technology with students</p>	<p>Revise survey and administer at the beginning of 2008-2009 school year to teachers</p> <p>Ensure distribution of Massachusetts Instructional Technology standards to all teachers and develop connections to state website</p> <p>Expand technology professional development opportunities to increase teacher proficiency</p>	<p>At least 85% of teachers use technology appropriately with students each week, including the following areas: research, multimedia, simulations, data interpretation, communications and collaboration.</p>

Benchmark #2: Technology Integration

2. Teacher Use of Technology- (not direct instruction and/or outside of the classroom)

Current Conditions	Intermediate Steps	Indicators of Success
<p>Survey conducted using elements of Massachusetts DOE Technology Self-Assessment Tool, n=333 out of 1400.</p> <p>79% of the respondents use technology nearly every day to plan, administrative tasks, communication, and collaboration</p> <p>19% of respondents use technology about once per week</p> <p>Less than 1% of respondents use technology about once per month</p> <p>Less than 1% rarely or never use technology</p>	<p>Increased use of First Class email and expand uses to provide greater collaboration software</p> <p>Development of web-based tools for teachers for lesson planning, administrative tasks, and curriculum sharing. (See benchmark 5 for more detail)</p>	<p>100% of teachers use technology everyday, including some of the following areas: lesson planning, administrative tasks, communication, and collaboration. Teachers share information about technology uses with their colleagues (DOE)</p>

3. Teacher Use- technology proficiency levels

Current Conditions	Intermediate Steps	Indicators of Success
<p>Survey conducted using elements of DOE Massachusetts Technology Self-Assessment Tool (TSAT) in June 2006. 333 respondents out of 1400 sent equaling 43% response rate</p> <p>41% of the respondents felt that they had <i>basic knowledge</i> using hardware or software</p> <p>37% of the respondents felt they had <i>proficient knowledge</i> using hardware or software</p> <p>32% of respondents felt they had <i>basic knowledge</i> in word processing skills</p> <p>32% of respondents felt they had <i>proficient knowledge</i> in word processing skills</p> <p>40% of respondents had <i>basic</i> knowledge of spreadsheets</p> <p>14% of respondents had <i>proficient</i></p>	<p>Increase the proficiency level of teachers from a basic knowledge level to one that transforms the teaching process by allowing higher levels of proficiency.</p> <p>Insure that all teachers are aware of their enrollment in Mass One (state-run website) to enable their usage of online resources available at that site</p> <p>Increase the professional development offerings for teachers to include all Ms Office applications and website development</p> <p>Make the development of technology related skills part of each teachers' evaluation specifically in the areas identified.</p>	<p>At least 90% of the teachers are working toward the proficient level in technology and by 2011, 80% of the teachers will have reached the proficiency level as defined by the Massachusetts Technology Self-Assessment Tool (locally designed survey from TSAT) DOE.</p>

Benchmark #2: Technology Integration

<p>knowledge of spreadsheets 42% of the respondents felt they had <i>basic knowledge</i> of databases</p> <p>17% of the respondents felt they had <i>proficient knowledge</i> of databases</p> <p>35% of the respondents felt they had <i>basic knowledge</i> of multimedia skills</p> <p>16% of the respondents felt they had <i>proficient knowledge</i> of multimedia skills</p> <p>28% of the respondents felt they had <i>basic knowledge</i> of Internet usage</p> <p>36% of the respondents felt they had <i>proficient knowledge</i> of Internet usage</p> <p>25% of respondents felt they had <i>basic knowledge</i> of creating and posting a web pages</p> <p><1% of respondents felt they had <i>proficient knowledge</i> of creating and posting a web pages</p>		
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4. Email System (First Class)

Current Conditions	Intermediate Steps	Indicators of Success
<p>First Class is primarily used for email with moderate use of conferences to support sharing of curriculum and methods</p> <p>Calendars are in use to track school events, professional development, extracurricular events, and permitting of school facilities</p> <p>98% of respondents within the district use email to communicate with other staff, students or parents(42% response rate)</p>	<p>Continue to investigate expansion of the FirstClass system to improve communication among teachers, staff and administration.</p> <p>Research and report on how FirstClass can be integrated as a tool for teacher and student communication at the high school level.</p>	<p>First Class Unified Messaging system is used by all district employees to communicate effectively with each other, conduct online discussions, and share information about teaching and learning.</p>

Benchmark #2: Technology Integration

5. Student Proficiency

Current Conditions	Intermediate Steps	Indicators of Success
<p>Data on student proficiency mostly qualitative and anecdotal.</p> <p>The CRLS Technology Rubric exists and addresses student proficiency in five areas of technology integration and knowledge.</p> <p>Rubrics exist for five project-based activities that teachers can use within their classroom to assess whether the skills are met.</p>	<p>Development of survey to be conducted in grades 5, 8 and 11 with regard to student proficiency and access to technology</p> <p>CRLS needs to develop a manner in which to assess the proficiency of this rubric.</p>	<p>At least 85% of students from grades 5 to 8 show proficiency on the Massachusetts Recommended PreK-12 Instructional Technology Standards for Grades 5 to 8 (DOE)</p> <p>At CRLS, 85% of the 11th grade student population is in the proficient category on the CRLS Technology Rubric which is part of the Student Learning Expectations. outlined in the NEASC technology rubric</p>

6. Office of Special Education (OSE)

Current Conditions	Intermediate Steps	Indicators of Success
<p>Each Office of Special Education teacher / employee has access to a computer workstation.</p>	<p>Purchasing new machines to accommodate systematic changes as dictated by software providers and citywide upgrades and developments.</p>	<p>All the special educators within a school building are included in the upgrade cycle for equipment within the given school.</p>

7. Multimedia equipment integrated with teaching and learning using visual/auditory tools

Current Conditions	Intermediate Steps	Indicators of Success
<p>Inventory of elementary multimedia equipment since 2005/6. Annual rotating purchase schedule for cameras, scanners, overhead projectors, DVD players, TVs, CD players.</p> <p>Curricular use of multimedia varies in schools depending upon interest and expertise of staff</p> <p>TRC kits borrowed by elem. Schools support video projects.</p>	<p>Work with Cambridge Educational Access to increase opportunities for middle grade students. Cambridge Educational Access Plan.</p>	<p>Goals of the Cambridge Educational Access Technology Plan are met and provide appropriate tools for students and teachers.</p>

Benchmark #2: Technology Integration

8. TI graphing calculators

Current Conditions	Intermediate Steps	Indicators of Success
Graphing calculators are used by students in grades 6 to 12 for understanding mathematical concepts and to motivate deeper understanding. Usage varies at different grade levels.	Equip classrooms with adequate resources and curricular connections Inventory of graphing calculators used in grades 6 through 12 within math / science classrooms	85% use in grade 6. 100% use in grades 7-12.

9. Media Production

Current Conditions	Intermediate Steps	Indicators of Success
Curriculum areas at the high school produce media to achieve learning goals At CRLS, Advanced Placement Spanish, Music, Culinary Arts, STARS (Students Teaching and Advocating for Respect) and Athletics have used media production as part of their teaching plan	Meet with curriculum planners to identify areas for inclusion of a media project Design curriculum modules that assist teachers in achieving their learning goals Determine best formats for implementing projects	Each curriculum area completing at a minimum one production each academic year for cablecast

10. Electronic response system (referred to as “touchpads”)

Current Conditions	Intermediate Steps	Indicators of Success
Response system Touchpad’s are at CRLS on a pilot basis (Sept. 2007)	Assess effectiveness of pilot. If successful, expend pilot to other schools	Teachers have access to electronic response system that quickly and accurately can assess student understanding in their classrooms

11. Media Literacy- Middle School Curriculum

Current Conditions	Intermediate Steps	Indicators of Success
Media Literacy: the ability to communicate competently in all media forms, print and electronic, as well as to access, understand, analyze and evaluate the powerful images, words and sounds that make up our contemporary mass media culture. Tobin has full media literacy course for 7/8 th grade students. Cambridgeport, Kennedy Longfellow, King Open and King schools have incorporated some aspects. Design team and National history projects have used media.	Provide Cambridge Educational Access media literacy and production curriculum to all schools via Library Media and Tech Specialists Ideally deliver the curriculum with school staff to model implementation and train users Continue to purchase, maintain and upgrade media making equipment for each school Provide hands on technical and curricular assistance	All elementary schools establish some ongoing aspect of media literacy education that helps meet school goals.

Benchmark #2: Technology Integration

B. Resources

1. Online Reference Sources

Current Conditions	Intermediate Steps	Indicators of Success
<p>Elementary online resources available system-wide, e.g., <i>World Book Online</i>, <i>Kids Info Bits</i>, <i>InfoTrac</i>, <i>Newsbank</i>, <i>TeachingBooks.net</i>, <i>Grolier's Online</i>, <i>African American History Online</i>), but underutilized. Usage statistics show up for 7 of 11 buildings.</p>	<p>Redesign library dept. website to improve gateway, Increase knowledge/use for teaching, learning, and personal interests. Promote home access. By 2009 <i>federated search tool</i> for single-point information access to be integrated with instruction(e.g., Thompson Gale's <i>Powersearch</i>)</p>	<p>Grade 3-8 students effectively use age-appropriate websites, online subscription databases, and encyclopedias from membership Metro west Regional Library System membership and paid subscription databases. Student assignments and bibliographies show wider access and use of information Usage statistics increase across schools Search strategies used in instruction as part of thinking and questioning skills</p>

2. Library online Catalog/Automation system

Current Conditions	Intermediate Steps	Indicators of Success
<p>Minimum of one look-up (PAC) station in all libraries. Libraries vary in ability for full class instruction in use of PAC. Aquabrowser installed 11/06, with librarian training 12/06.</p>	<p>Offer catalog access from all computers in CPS Network; Introduce /train teachers and students. Use search strategies in lessons to help questioning and problem-solving skills. Cataloguer to generate site-based industry-standard reports for improving collections.</p>	<p>Students grades 3 -8 search catalog independently with standard or Aquabrowser (graphical) search techniques. Library teachers use Cognos reporting features for collection management and program Circulation and ILL loan increases, more use of library resources in student assignments.</p>

Benchmark #2: Technology Integration

3. Web-based portal system for teachers - EdLine

Current Conditions	Intermediate Steps	Indicators of Success
<p>District began implementing parts of a comprehensive web-based system that addresses the following: student data, attendance, report cards and curriculum related resources. The data is on-line but in a variety of different locations, not one specific entry point, meaning "portal."</p>	<p>Adoption of a web portal for single point of entry for teachers, students and administration linking student data, attendance, report cards and curriculum related resources.</p> <p>A district wide middle school (gr. 6-8) progress report system will be completed in Spring 2008.</p>	<p>The School system has a comprehensive web-based system that addresses the following: student data, attendance, report cards and curriculum related resources.</p>

4. DVD Content is accessed directly from publisher via Internet

Current Conditions	Intermediate Steps	Indicators of Success
<p>Teachers borrow VHS/DVDs from TRC's collection; not enough titles to meet same-course demand Through trial subscription to Power Media, teachers can download but not save DVD content from publisher's site to classroom computer Downloading has proven to be unreliable on the CPSD network</p>	<p>Work with MIS department on establishing download protocols to enable reliable use Investigate costs – determine if this is m effective delivery of content. Work with MIS to determine if content downloaded to TRC server and distributed from dedicated server managed by TRC would be more Effective. Investigate open source technology.</p>	<p>All teachers reliably access DVD and other video content as needed throughout the school day.</p>

5. Online Curriculum Documentation

Current Conditions	Intermediate Steps	Indicators of Success
<p>Middle grades curriculum documents are currently shared in a 3 ring binder Most high school syllabi are prepared to be on-line and web-based through the CPSD web site.</p>	<p>Continuation of the documentation of curriculum The completion of grade level curriculum learning expectations both hardcopy and online</p>	<p>80% of middle school English language arts, math and science curriculum is documented and accessible online for teachers.</p> <p>High school physics daily, weekly, and semester plans are on line for all high school physics teachers.</p>

6. Online student course requests for CRLS

Current Conditions	Intermediate Steps	Indicators of Success
<p>Course requests and selection by students is done by paper collection format</p>	<p>Examine Star_Base SIS to determine if CRLS can use of course request module. MIS Dept and Web Administrator to explore electronic course database that</p>	<p>Each year, students request courses using an online resource. Counselors with Data Center support are able to schedule students into courses electronically.</p>

Benchmark #2: Technology Integration

	collects student course requests and interfaces with Star_Base scheduling module.	
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7. Online course syllabi and curriculum information for all grades

Current Conditions	Intermediate Steps	Indicators of Success
An online course management system has been developed and implemented by MIS Dept and Ed Tech Dept. Implementation uneven across CRLS.	Provide training and opportunities for teachers to do this with the support of MIS and Learning Community Staff	100% compliance by teachers.

8. Collaboration with technology-enhanced instruction

Current Conditions	Intermediate Steps	Indicators of Success
Gaps in library access and instruction across small learning communities, grade levels, and subjects. Research projects required in E/LA as of 2006-7. Physic First requires research projects. Many classes focus on plagiarism as an ethical use issue when doing research. Little focus on teaching general ethical use policy.	Library teachers meet with curriculum departments, small learning communities and individual teachers to develop research projects that incorporate information literacy skills, Internet safety instruction and ethical use of computers and electronic resources.	Library teachers help students' research, organize, and present learning in content-area units and lessons. This instruction includes safe, responsible, and ethical use of the Web. Teachers and students understand how to effectively search for, evaluate and use information online. Graduating students are able to: <ul style="list-style-type: none"> Effectively find and use electronic resources Understand plagiarism and ethical use Use the internet safely and responsibly

C. Learning Environment

1. Technology- Enhanced Classrooms

Teachers utilize technology enhanced classrooms with computers, printers, projectors, and interactive, multi-media whiteboards to support teaching and learning practices, which help students, build understanding of their subject areas.

Current Conditions	Intermediate Steps	Indicators of Success
CRLS: over 50 classrooms will receive enhancements in the form of computers, projectors, interactive whiteboards, and/or software to create technology rich classrooms based on a purchase plan with allocations from FY 06 and FY 07. Interactive whiteboard systems installed at CRLS in various	Continue to expand technology in classrooms throughout the high school.	Teachers utilize technology enhanced classrooms with computers, printers, and interactive, multi-media whiteboards to support teaching and learning practices, which help students, build understanding of their subject areas.

Benchmark #2: Technology Integration

<p>departments specific classrooms.</p> <p>Elementary Schools: Replaced old computers (over 170 computers) as well as 11 mobile laptop carts in the elementary schools.</p> <p>Interactive whiteboard systems (RM Education) along with accompanying mathematical software installed in middle school mathematics classes Spring 06.</p>		
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2. Increase access to technology within the classrooms by either placing additional desktop computers or laptops on cart for in-class use.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Presently all classrooms have at least one teacher computer and one student computer.</p> <p>All science classes at CRLS have four machines.</p> <p>There is at least one mobile cart in each of the middle school clusters.</p>	<p>Increase the number of machines per classroom.</p>	<p>There are at least four computers accessible to each classroom in the district as well as mobile computer cart with wireless laptops for student use.</p>

3. School-based technology enhanced resources

a. Video Conferencing Center established at the Teachers' Resource Center –CRLS

Current Conditions	Intermediate Steps	Indicators of Success
<p>Videoconferencing capability not present within system at the time</p>	<p>Investigate Video Conferencing technology and create plan for purchase and implementation</p>	<p>A video conferencing center exists for the district and is located at the Teachers' Resource Center at CRLS</p>

b. Updated World Language analog lab to digital

Current Conditions	Intermediate Steps	Indicators of Success
<p>The foreign language lab system is analog and 7 years old.</p> <p>Wiring sufficient in lab to convert to digital</p>	<p>Develop plan for a for new digital system</p> <p>Investigate funding resources as initial estimates indicate \$ 250,000 for the upgrade</p> <p>Inclusion in renovation to be investigated</p>	<p>The World Language lab is digital, managed by server software with adequate hardware installed.</p>

Benchmark #2: Technology Integration

c. Establishment of a digital bilingual language lab for the development of language skills for English Language Learners

Current Conditions	Intermediate Steps	Indicators of Success
The Bilingual department has no language lab The World Language lab provides limited access	Explore the dual use of other labs within CRLS or the establishment of a dedicated language lab Evaluate English acquisition software that meets the identified needs	The Bilingual / ESL program has technological resources to support the development of English language skills.

d. Create student news programs at all schools for intra and district wide sharing

Current Conditions	Intermediate Steps	Indicators of Success
Baldwin and Peabody each have some ongoing effort for a morning news program.	Develop and help implement curriculum and format for creating news program to schools. Provide equipment such as communications systems for creating and distributing program.	School principals desiring to create weekly news program to be shared with the district and the community via an internal communications system and CEA channels are provided resources.

e. Access to multimedia software (music, photo, web design, movie production, etc. programs), including installation of multimedia plug-ins in web browsers within curriculum based projects

Current Conditions	Intermediate Steps	Indicators of Success
Multimedia projects frequently are an integrated piece of the research process, and access to the software is not consistent	Work with MIS to establish a common base of software and browser plug-ins or helper applications. Insure that they are installed, up-to-date and easily accessible on library computers	100% of student workstations in the library provide access to multimedia software, helper applications, and browser plug-in

D. Social, Legal and Ethical Issues

1. An Acceptable Use policy exists for the district and is updated by Legal Counsel

Current Conditions	Intermediate Steps	Indicators of Success
There is a procedure in place for students' to have a signed Acceptable use policy on file at the school Each year the acceptable use policy is sent home with students at beginning of school, signed and returned. At CRLS access to the Internet is contingent on the proper acceptable use policy signed by designated family member	This goal is met yet the reassessment of the form is necessary every few years by Legal Counsel.	There is a policy and procedure in place for signed Acceptable use Policy for the school district. The Acceptable use policy is current and reviewed every two years by legal counsel.

Benchmark #2: Technology Integration

2. A web guidelines document exists to guide the development of websites within the school district

Current Conditions	Intermediate Steps	Indicators of Success
Websites are developed by a school team led by Principal with support from the Director of Public Information and MIS department's web administrator.	This goal is being met, yet the reassessment of the guidelines document is necessary every few years by Legal Counsel and MIS department.	A web guidelines document exists to guide the development of websites within the school district.

3. Internet Safety Curriculum is developed that consists of specific grade level content and also has a parental component related to Internet Safety awareness

Current Conditions	Intermediate Steps	Indicators of Success
Schools provide Internet safety curriculum on an inconsistent basis. Some workshops are offered but not in all segments of the district.	<p>Course content is developed using State program "ISafe" and the materials from the Attorney General's Office.</p> <p>Each school is introduced to the curriculum. Curriculum piloted at Cambridgeport. Modifications to the curriculum as a result of pilot (Jan. 08)</p> <p>Binders and CD produced for each school to implement in 7th or 8th grade during Spring 08.</p> <p>Parent nights on Internet safety are developed and offered by the Health Department for schools who request it.</p>	There is Internet safety program for students and parents in place in all the schools.

4. Copyright and Fair Use for taping, recording videos, software and disks

Current Conditions	Intermediate Steps	Indicators of Success
There are written guidelines and copies are distributed to all the schools.	<p>To make sure that copyright and fair use is included in the Internet Safety course offered in the district for middle schools.</p> <p>To continue CRLS training on fair use practices via Librarians, tech specialists and teachers.</p> <p>All policies and procedures approved by Legal Counsel in the School Department.</p>	<p>There is a program for middle school and high school that address copyright and fair use policies consistently throughout the district.</p> <p>Students and Teachers appropriately use these policies in their work.</p>

Benchmark #2: Technology Integration

E. Assessment/Data

1. Regular, systematic data collection on student achievement and assessment into data warehouse for use to inform instruction and professional development

Current Conditions	Intermediate Steps	Indicators of Success
<p>District post assessments are available in all K-8 science units. In Science, data is collected in 7th and 8th grades with scan sheets three times per year. Results are analyzed with Testwiz software and data is shared with teachers.</p> <p>The process of providing Health and Fitness Report Card information about students' health and fitness is being developed.</p> <p>Other assessment data is available in the District Benchmarks report done by the district's data warehouse.</p>	<p>In Science, implementation of assessments to lower grades with data reporting by teachers.</p> <p>In Physical Education, data is collected on fitness and health. This data is also reported out to parents via a mailed-home Health and Fitness Report Card, In other disciplines, insure that data is collected and store for periodic assessments as well MCAS.</p>	<p>Assessment data is available to teachers so they can do their own analyses.</p> <p>Parents receive a Health and Fitness Report from the system.</p>

2. Students use technology in their portfolio assessments

Current Conditions	Intermediate Steps	Indicators of Success
<p>Some students use technology within their portfolios.</p>	<p>All curriculum units should have a technology strand embedded in them.</p> <p>Start implementation in middle school – Spring of 2007 all 8th graders will have some technology component in their portfolio presentation.</p>	<p>All students have some technology in their portfolios. Curriculum areas are aligned with a technology strand.</p>

3. Students use computers for data collection, documentation, and analysis

Current Conditions	Intermediate Steps	Indicators of Success
<p>Students use computers rarely in the classroom for documentation. They occasionally go to the computer lab. Grades 6, 7, 8 science teachers now have access to laptop carts with science probes and software.</p>	<p>Computers are available to all students for use both with data collection, analysis and documentation in classrooms. This includes access to probes, digital still and movie cameras.</p>	<p>All students use computers and related curriculum software and tools in the classroom more than once per week.</p>

Benchmark #2: Technology Integration

4. Teachers use online assessments as another tool for acquiring information about each student.

Current Conditions	Intermediate Steps	Indicators of Success
Very little use of online assessments by teachers.	Identify services we want to use that support online assessments. Provide training for the staff. Provide support for the development of the assessments.	At least 50% of the teachers will use some sort of online assessment to gather more information about student learning.

F. Administrative / Operations

1. Office of Special Education (OSE) uses technology tools such as, data warehouse and document imaging, to store and access special education records.

Current Conditions	Intermediate Steps	Indicators of Success
Current conditions meet all requirements for day to day functioning of the OSE office. Archiving of most documents is done manually. Paper records located at 159 Thorndike St. Software called EasyIEP is used to document student individual education plans and related information.	Introduction of Archive Functions within OSE system to create less paper within the office. This would assist with faster record access and would relieve the burden of filing old records. Develop effective mechanism for capture of Medicaid reimbursable expenses, through Easy IEP software.	OSE staff has immediate access to Easy IEP software and related documents.

2. Website development and printed materials for parents/students of district-wide curriculum and learning expectations

Current Conditions	Intermediate Steps	Indicators of Success
Some curriculum disciplines have a framework designed and are maintaining content.	Insure that all departments have access to the content management system from MIS department and maintain their content with up-to-date and accurate information for the school community.	The District website has accurate and current information about all curricula and learning expectations.

Benchmark #2: Technology Integration

3. The district is committed to providing technology and software to improve school business practices of our Human Resources, Finance, Payroll and other district support departments.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Each employee has an accessible work station and has on-line access to human resources and finance software (“PeopleSoft.”) as well as email and Internet access.</p>	<p>Purchasing of new machines to accommodate systematic changes as dictated by software providers and citywide upgrades and developments. Improve the interface in PeopleSoft for Human Resources, Payroll and Finance. Explore the use of digital signatures for processing forms.</p> <p>Human Resources- Development of a seamless connection to Human Resource functions of PeopleSoft. Streamlining of service agreement process.</p> <p>Accounts Payable: Investigate modification of PeopleSoft application software to enable accounts payable to input their own bills.</p> <p>Payroll: Development of electronic timesheets. Streamlining of service agreement process.</p> <p>Payroll and Special Education: Introduction of Archive Functions leading to more of a “paperless office”.</p> <p>Purchasing and Accounts Payable: Automation of requisitions.</p>	<p>CPS Staff will have more immediate access to vacation, sick, and personal time balances, either on pay stubs, or through on-line access.</p> <p>Balances can be viewed in “real-time” without calls to the payroll office.</p> <p>Payroll staff can easily access Payroll archive through a database function.</p> <p>Administrative operations would develop service agreements that have “real time” access to status and balances relative to service agreement process.</p>

Benchmark # 3 Technology Professional Development

Definition of Teacher Professional Development goes beyond the term “training” with its implications of learning skills, and encompasses a definition that includes formal and informal means of helping teachers not only learn new skills but also develop new insights into pedagogy and their own practice, and explore new or advanced understandings of content and resources. [This] definition of professional development includes the support for teachers as they encounter the challenges that come with putting into practice their evolving understandings about the use of technology to support inquiry-based learning...Current technologies offer resources to meet these challenges and provide teachers with a cluster of supports that help them continue to grow in their professional skills, understandings, and interests.” (Grant, n.d.) North Central Regional Educational Laboratory

The Cambridge Public Schools has for numerous years employed a collaborative design team model of professional development aimed at helping teachers to design rigorous curriculum in collaborative teams that integrates new technologies in their classroom practice and, in so doing develops teachers’ confidence and skills. During 03-05 the use of a research-based framework (Teaching for Understanding) was introduced as a shared pedagogical language. This model was evaluated from 2003-2005, the outside evaluator provided the following in their executive summary. (Appendix C).

Evaluators found that Project COOL (name given to design teams in grant) had a substantial impact on the professional lives of almost all of those who took part. These included classroom, library media and technology teachers, lead teachers, school administrators, and curriculum coordinators. Through collaborative and multiple opportunities for professional learning, educators learned ways to incorporate technology into their professional practices; they become more confident using technology, both with students and with other educators; they learned approaches that they deemed to be of significant help in better aligning lessons to Learning Expectations; and they learned new frameworks that helped them better assess their work with students.

(Spicer, 2005)

Summary

Administrative and instructional programs and/or departments identified the need for consistent and supported ongoing technology training and professional development. Below are topics identifying common aspects to enable administrative staff to perform or enhance operations and instructional staff to improve standards-based teaching and student outcomes. Within these topics, departments can work to provide specific training and support requirements. Reporting:

- (1) Administrative/operations: CRLS Data Center, Legal Counsel, Payroll, Purchasing, Special Education.
- (2) Teaching and Learning: Elementary schools, CRLS SLC’S, RSTA, Special Education, Curriculum Departments

A. Needs Assessment and Planning

1. Planning for Professional Development includes assessment of district and teachers needs The assessment is based on the Massachusetts Technology Self-Assessment Tool.

Current Conditions	Intermediate Steps	Indicators of Success
Survey results from June 2006. n=333 out of 776 or 43% return Type of professional development needed: 11% of respondents needed basic computer operations 39% of respondents needed Ms Office	The survey will be revised and delivered again in September 2008. The findings of the survey questions devoted to the professional development needs will inform the school department technology	The district and teachers needs are assessed annual through a survey, workshop evaluation forms or input from curriculum department heads and principals to meet the designated needs of each school. (DOE)

Benchmark # 3: Technology Professional Development

<p>63% of respondents needed creating web page training 52% of respondents needed digital imaging training</p> <p>Model of training that works best: 27% of respondents chose mini sessions after school 15% of respondents chose summer workshops 14% of respondents chose in class support 36% of respondents chose 10 hour application based after school workshops for credit</p>	<p>offerings each year.</p> <p>The district will strive to provide job embedded training in order to insure that teachers are able to use what is learned to assist students with developing greater understanding of the curriculum content</p>	
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2. Standards of technology proficiency for specific tools, applications, information technology, and emerging online communication environments are part of professional development plans and ongoing performance evaluations for administrators, clerical staff, teachers, and paraprofessionals.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Most departments report issues of sporadic training, voluntary training, inconvenient time or location as obstacles to consistency among staff and levels of proficiency.</p>	<p>Develop common standards for both mandatory and choice system-wide training for tools, applications and information technology identified by the district. Ensure access through multiple means and develop procedures for attendance and accountability</p>	<p>Technology proficiency is incorporated into professional development plans and performance evaluations for all administrative, clerical, and instructional employees</p> <p>A structure is in place to allow universal and department-specific ongoing training for increased levels of proficiency across the board</p>

B. Productivity Tools

1. Ongoing training is offered at different levels in the use of “universal” productivity and communication tools (e.g., Power Point, Excel, First Class, Adobe Acrobat, Star_Base, TestWiz, multimedia production)

Current Conditions	Intermediate Steps	Indicators of Success
<p>Understanding and use vary widely within departments and across the district in both administrative and instructional use of tools.</p> <p>Some system wide trainings, some site-based, but most voluntary.</p> <p>Moving beyond basics not widely reported.</p>	<p>Choice of a comprehensive web-based School/Teacher to Parent/Student information portal (Benchmark 5)</p> <p>Obtaining these training needs to be part of the teacher’s professional development plan.</p> <p>Training on web-portal for all teachers.</p>	<p>The district provides the opportunity for 100% of administrative staff to engage in high-quality professional development that included the integration of technology into their day to day job functions.</p> <p>The district provides opportunities to enable at least 85% of district staff to have participated in 45 hours of high-quality professional development covering technology skills and the</p>

Benchmark # 3: Technology Professional Development

	<p>Multiple location and times for ongoing training offerings in widely-needed tools with specific applications.</p> <p>Specific training as needed for specialized applications within departments.</p> <p>Mandated training and tied to evaluation performance standards.</p>	<p>integration of technology into instruction.</p> <p>Teachers implement what they are learning in the workshops through the student instructional process on a daily basis.</p> <p>Key unit plans and activities are in school district web page for district access.</p> <p>Differentiate training models for staff.</p>
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2. Online reference source training for library and technology teachers enables them to lead in training other teachers and students – Internet Safety Curriculum

Current Conditions	Intermediate Steps	Indicators of Success
<p>Knowledge base varies by school, based on individual interest and experience.</p> <p>No consistent internet safety curriculum for students about safe use of internet.</p>	<p>Offer joint workshops and individual site-based training on online research sources for technology and library staff to enable them to provide training and outreach to staff and students.</p> <p>Include training as part of design teams.</p> <p>Internet safety curriculum/toolkit being developed for use in 2008.</p> <p>Cambridgeport School pilots curriculum during fall 2007 and revises curriculum accordingly.</p> <p>Distribution of Internet Safety binders and CDs in 2008.</p> <p>Test portions of curriculum in all schools spring of 2008</p>	<p>Teachers/specialists promote resources as part of “safe” alternative to Google searching for students.</p> <p>Libraries seen as both physical spaces and virtual spaces to accommodate multiple users from multiple locations.</p> <p>Student assignments require demonstration of searching, evaluating, and using online reference tools.</p> <p>Students in grades 6 -8 will have consistent training for internet safety and ethical use. Cyberbullying and unethical use of resources will decrease as a result of education.</p>

3. Library Automation

Current Conditions	Intermediate Steps	Indicators of Success
<p>All schools automated, but librarians’ use of system varies for reporting and data analysis.</p> <p>Teacher and student use of the public catalogue varies (in library, labs, classrooms); no access to catalogue outside school buildings.</p>	<p>Ongoing training and support for automation management for inventory and circulation, bibliographies, analysis of use.</p> <p>Use of collection analysis and usage data to inform purchases for alignment to district goals and state frameworks.</p> <p>Offer training in FST.</p> <p>By March 2008 district library catalogue will be available on the web for school and home use</p>	<p>All library staff will be proficient in use of the management system for reporting and analysis. Library staff will do ongoing instruction for staff and students in use of the catalogue, including Aquabrowser graphical search tool.</p>

Benchmark # 3: Technology Professional Development

4. Online learning environments (Web 2.0): library teachers will use technology for professional growth and ways to enrich traditional library services with dynamic activities connected to reading, writing, thinking skills to mirror online world.

Current Conditions	Intermediate Steps	Indicators of Success
1/3 of staff has taken online learning courses. Potential for shared student learning environment in library context seen in conferences, journals in 2005-6 (blogs, wikis, podcasts, social bookmarking,etc).	Curriculum meeting demonstrations of use of tools in classroom projects. Workshops by expert users in school library and technology field to introduce use of tools for instruction and student learning. Incorporate use of web 2.0 tools in design team projects to enhance middle school student use of technology for colaboration	Online learning opportunities foster both teacher and student construction of shared knowledge. Teachers and specialists across schools collaborate to facilitate student online sharing or connect students with other communities.

5. Training on the Use of Study Island software to inform instruction

Current Conditions	Intermediate Steps	Indicators of Success
A web based piece of software entitled <i>Study Island</i> for MCAS prep is available in certain schools. Teachers have limited knowledge of how to access reports on the system.	Continue ongoing training and analysis of results to inform practice within the classroom. Teachers are trained to access information and use reports within the classroom setting	Study Island is available in each school desiring to use it. Students have both school and home access to the software. Teachers are able to use Study Island to track student progress with specific skill development

C. Integration into the Curriculum

1. Integration of technology into the curriculum that supports inquiry, deeper understanding and proficiency.

Current Conditions	Intermediate Steps	Indicators of Success
Technology integration is voluntary and uneven within the schools.	Include technology integration as a portion of classroom expectations for teachers. Insure through supervision and evaluation that technology is being provided by teachers to students in a manner that fosters deeper understanding of the content.	By the end of 2010, 85% of district staff will use technology to deepen understanding and foster inquiry within specific disciplines.

2. A Collaborative Design Team Model of Professional Development is more widely used.

Current Conditions	Intermediate Steps	Indicators of Success
Desire among middle and high school staff to reinstitute design team model in place during previous years under DOE technology grants.	Design Teams to support middle school task force recommendations for project based learning and collaboration in core subject areas, but integrating other discples.	Increased collaborative work in the core subject areas both at the middle school and high school as evidenced by student and teacher work.

Benchmark # 3: Technology Professional Development

3. Technology professional development is sustained and ongoing and includes curriculum area and instructional coaches, modeling best practices, district-based mentoring, and design groups.

Current Conditions	Intermediate Steps	Indicators of Success
Presently there are school based technology technical assistants and some technology integration specialists (teacher positions) in each elementary school and lab assistants in each of the small learning communities at CRLS There are discipline specific coaches in most of the schools	Support curriculum specific coaches in the use of effective integration tools related to their specific curricular area Continue to develop the collaborative design team model which allows for modeling, best practices and mentoring to take place by way of a team approach	Technology professional development is sustained and ongoing and includes coaches, modeling best practices, district-based mentoring, and design groups (DOE).

4. Interactive white board training.

Current Conditions	Intermediate Steps	Indicators of Success
Some teachers are trained to use interactive white board technology in their classrooms.	Develop a train the trainer model of professional development where teachers who develop expertise in the use of interactive white boards train other teachers within their disciplines	Teachers who have interactive whiteboards in their classroom have all received training and now are sharing curriculum across disciplines.

5. Science probeware.

Current Conditions	Intermediate Steps	Indicators of Success
Some of the science teachers are comfortable using probes for data collection.	Training for science staff on how to populate/design this database and also training for teachers on how to use it.	All teachers capable of assembling and using probes as raining and support a data collection tool with students.

6. Teachers and students use digital technology (cameras and video cameras) to document their work.

Current Conditions	Intermediate Steps	Indicators of Success
A small percentage of teachers can help students integrate digital images and video in their work.	Training and support both for teachers as users and for teachers with students. This includes some standard PD, but also individual mentoring.	50% of teachers have to use project based work

Benchmark # 3: Technology Professional Development

7. Teachers to be proficient with media making tools including basic camera and editing techniques.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Media making skills and ability to integrate in curriculum varies widely. Currently, CEA offers 4 workshops per year – camera use, editing, using the existing media literacy curriculum, and an overview of what is available district-wide.</p>	<p>Need to determine appropriate goals for teachers, staff, and students system wide per frameworks and standards as they apply to this area.</p> <p>Based on determining goals, needs for training, technical support and equipment will have to be assessed.</p> <p>Professional development workshops and classroom curriculum will need to be developed in response to establishment of goals and needs assessment.</p>	<p>Teachers with assistance from library media and tech specialists to be able to integrate media making and literacy concepts in subject areas</p> <p>teachers and library media staff to be able to teach basic media literacy unit(s) grades 6-12.</p>

8. Assistive Technology

Current Conditions	Intermediate Steps	Indicators of Success
<p>Training has been done for a limited number of people, and when those people change buildings or leave the district there is often no one who knows how to use the specialized software.</p>	<p>Professional development in the area of assistive technology and in the software tools available to assist students with special needs PD in use of technology more than computers (Assistive Technology use such as Alpha Smart, Video production, mobile cart with projector, Universal Access tools, Smart Board) to provide access for all students. SPED staff updated on Easy IEP, caseload calculations. ATOMIC LEARNING – at home training modules for teachers on power point, web page development, etc.</p>	<p>All staff is knowledgeable about the availability of assistive technology resources in the district and knows how to access them. Appropriate staff is trained in the use of specialized software.</p>

9. Kurzweil software training that is used for MCAS alternative delivery method for specific students and other assistive technology software.

Current Conditions	Intermediate Steps	Indicators of Success
<p>The availability and use of titles such as Kurzweil 3000, Pix Writer, Intellitools Classroom Suite, and Boardmarker is varied in each building.</p>	<p>Move from one computer with Kurzweil to a site license in each school (completed Sept. 2007) . Other software to be assessed and upgraded.</p>	<p>All buildings have sufficient numbers of legal licenses of Boardmaker, Kurzweil, Pix Writer, and other specialized software.</p>

Benchmark # 3: Technology Professional Development

D. Clerical and Administrative Training

1. CRLS clerical and administrative staff: Proficiency in MS Office applications and the student database software and First Class email software.

Current Conditions	Intermediate Steps	Indicators of Success
Training sessions are presently offered for deans and clerks. The attendance at these sessions is sporadic and therefore ineffective. There is no common standard for technology proficiency for administrators and support staff.	A common standard should be developed for MS Office, student database software, and email. Training sessions should be mandatory and offered during the school day. Develop procedures for dealing with lack of attendance and accountability.	All administrative users (clerks, deans, coordinators) will reach the same level of proficiency in MS Office applications and the student database and First Class email software.

2. Training on the use of Test Wiz to provide data analysis and inform instruction.

Current Conditions	Intermediate Steps	Indicators of Success
Principals, Assistant Principals, technology assistants have received training on Test Wiz and are able to analyze assessment data.	Continue to train teachers on the use of Test Wiz. Establish Test Wiz data teams in each school that are trained and provide assistance to other teachers in their school.	Teachers use TestWiz regularly and data teams are trained and updated on new versions of the software.

3. PeopleSoft Training

Current Conditions	Intermediate Steps	Indicators of Success
The ability to use department related portions of the People Soft software varies throughout the district. Other than the high school budget analyst, schools do not have online access to PeopleSoft financial reports.	Collaborate with City IT department and financial staff to modify PeopleSoft user access security to provide school and department staff updating capability; assisted by school department MIS staff, rollout reporting application to schools and departments. Have an ongoing People Soft group within the school department that can provide in house training and expertise to new users	The skill level of People Soft users is at a level of proficiency where departments are able to run efficiently.

Benchmark # 3: Technology Professional Development

4. Central Administrative office personnel are provided with sufficient application and departmental specific training.

Current Conditions	Intermediate Steps	Indicators of Success
The district currently has limited opportunities for administrative office staff to receive in-service training at convenient times and locations.	Conduct an assessment of training needs. Need to have training mandatory and provided during the work day. Once signed up for a training, lack of participation means monetary reimbursement for slot being held. Develop relationship with “city hall” training programs allowing easier access to registration and places on training programs. Give access to on-line courses allowing greater flexibility for attendance.	Sufficient training is provided to all Central Administrative Offices that meet the needs of the staff and is conducted during the school day. The district has provided the opportunity for 100% of staff to engage in high-quality professional development covering technology skills and the integration of technology into their day to day job functions.

5. All administrative staff should be able to function at a high level on Microsoft Word, Excel, and PowerPoint.

Current Conditions	Intermediate Steps	Indicators of Success
The district currently offers district wide and school based technology professional development training that staff enrolls in on a voluntary basis.	Increase the opportunities for all administrative staff to receive training during the day on the applications need to fulfill their job responsibilities.	The district provides opportunities to enable at least 85% of district staff to have participated in 45 hours of high-quality professional development covering technology skills and the integration of technology into instruction.

6. All administrative staff should have a clear understanding of their impact on the quality of CPSD data that they come in contact with as well as the practices to optimize the data quality.

Current Conditions	Intermediate Steps	Indicators of Success
Little if any training is done in the area of data quality with the majority of the users inputting data	Increase the opportunities for all administrative staff to receive training during the work day on data quality issues and best practices	The district provides opportunities to enable 100% of district staff involved in data collection to receive training on data quality best practices in order to develop a culture of quality data throughout CPSD

Benchmark # 3: Technology Professional Development

E: Training Locations

1. District training facilities for computer lab-based professional development opportunities

Current Conditions	Intermediate Steps	Indicators of Success
<p>TRC Co-Lab Technology professional development opportunities are mainly offered centrally on a formal basis, though some TRC offerings are more informal.</p>	<p>Establish pattern of times available in the lab throughout the week. Survey staff to assess needs for lab. Build offerings around available time and needs of teachers. Invitations to experts in the community (Trish-syllabi), rubric maker.</p>	<p>At least 75% of staff has participated in at least one lab-based offering each year.</p>

2. Technology Training provided by Teachers Resource Center (TRC Co-lab)

Current Conditions	Intermediate Steps	Indicators of Success
<p>TRC Co-Lab Technology professional development opportunities offered centrally on a formal basis. Teachers' Resource Center Co-Lab open on flexible schedule for administrative, clerical, instructional staff trainings. TRC staff presently offers one or two multimedia application trainings per year</p>	<p>Strengthen Collaboration between Ed. Tech, Media Arts Education, RSTA, and Curriculum departments to offer and facilitate training during and after school hours by in-house and outside contracted professional development.</p> <p>Add use of interactive whiteboard technology and train TRC staff in use</p> <p>TRC staff participates in design teams at CRLS to support technology PD along with other resources within prescribed curriculum units.</p>	<p>The TRC Co-lab is used regularly by teacher teams, formal workshops, individual training for all major tools and applications identified by district.</p>

3. Systematic planning, outreach and communication about professional development opportunities will provide consistency in technology professional development and contribute to proficiency goals.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Use of First Class calendar for CRLS professional development. Notifications through First Class email, News, departments, for opportunities.</p>	<p>Develop and use system wide calendar for professional development offerings, with established policies and approval for posting</p>	<p>Documentation of the successful use of technology</p> <p>Annual Exhibition or expo opportunities to showcase technology integration connect to professional development.</p> <p>Calendars and menus of professional development offerings compatible with schedules are available through</p>

Benchmark # 3: Technology Professional Development

		multiple means across district and within departments.
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4. Library staff is knowledgeable and teaches with current technologies, such as Interactive white board technology and Web 2.0 applications

Current Conditions	Intermediate Steps	Indicators of Success
Library staff is currently learning how to use the Interactive white board technology. Web 2.0 application potential being investigated for instruction and communication, but not implemented through library assignments.	Pilot use of tools for sharing – e.g., student reviews and collective research.	Use of collective learning environments incorporated into student research and literature projects, supported by library.

Benchmark #1: Commitment to a Clear Vision and Mission Statement

Benchmark 4: Accessibility to Technology

This benchmark includes students per Instructional computer inventory, portable handheld devices, software upgrades, computers for teachers and staff, technical support and security.

A. Students per Instructional Computer

1. Annual Review: The MIS and Ed Tech departments will review with stakeholders the capacity of the computers in each location annually.

Current Conditions	Intermediate Steps	Indicators of Success
<p>A tagging and inventory system began in 2006 and will continue during the 2006-2007 school year which will enable the district to accurately analyze each location's equipment and age of equipment.</p> <p>School-based Technology Integration specialist does another physical inventory each year and the data is input to the MA DOE tech update data base by the Educational Technology Coordinator.</p>	<p>As the funds are available, continue to purchase machines for student use. (Coordinator, Educational Technology, Principals, CTO)</p> <p>Each year the level at which computer equipment is technically supported is reassessed. Elements that are taken into consideration on whether to replace it based on the speed of the processor in the machine (mhz); the amount of RAM; the hard drive capacity and the function that computer serves with respect to the student population.</p> <p>At this time the replacement cycle is five years.</p>	<p>The district has a ratio of 2 students per type A/B, Internet connected computer.</p>

2. Updated: Student Access to Instructional Computers

The chart below is reflective of equipment as of January 2008

School	A	B	C	Enrollment	Total Computers (A & B)	Students per Computers (A & B)
Amigos	98	16	0	298	114	3:1
Baldwin	154	11	0	384	165	2:1
Cambridgeport	106	18	5	281	124	2:1
Fletcher Maynard Academy	99	140	5	239	239	1:1
Graham & Parks	119	39	0	428	158	3:1
Haggerty	121	19	0	286	140	2:1
King	97	30	0	245	127	2:1
King Open	150	40	8	510	190	3:1
Kennedy Longfellow	140	55	3	374	195	2:1
Morse	142	0	0	345	142	2:1
Peabody	110	150	0	465	260	2:1
Tobin	84	25	0	331	109	3:1
CRLS/Extension Program	656	202	4	1539	858	2:1

Benchmark #1: Commitment to a Clear Vision and Mission Statement

Total Instructional	2076	745	25	5725	2821	2:1
Total Number (A,B,C)	2846					
Percentage of Total Instructional Machines in district	72.94%	26.17%	0.89%			

Type A=High End=Multimedia computers capable of running virtually all current software, including the latest high end video and graphics programs--or equivalent configurations to meet the stated function, Memory= 256 MB RAM or higher
Processor = PC = Pentium 4 or equivalent, Macintosh=G4 or G5 or equivalent

Type B=Average=Multimedia Computers capable of running most software except for the latest video and graphics programs--or equivalent configurations to meet the stated function, Memory= 128 up to 256 MB of RAM
Processor=PC=Pentium 3 or equivalent, Macintosh=G3 or equivalent

Type C=Low End

Multimedia Computers capable of running most current productivity applications--or equivalent configurations to meet the stated function, Memory=Less than 128 MB RAM

Processor =PC=Pentium 2 or lower, Macintosh=Apple Power PC 604e or Lower or equivalent configuration

3. Library Technology Equipment Standard: Establish schedule to increase to a minimum of 10 student workstations and wireless capability, plus one color printer for all libraries. A teaching area with projector and laptop is available to every library teacher.

Current Conditions	Intermediate Steps	Indicators of Success
<p>All schools' print and AV collections automated. System generates a variety of reports for collection maintenance and development. AV equipment automated at Kennedy/Longfellow and Cambridgeport, with other schools to be completed by 2009. From 3 – 8 computers of different generations.</p> <p>Automation and PAC stations sufficient. Integration of Patron Data from StarBase running smoothly.</p>	<p>Establish a schedule and shared funding responsibilities so that libraries can better serve students and staff for class, group, individual needs</p> <p>Establish clear, timely communications with MIS about data standard changes.</p> <p>Continue to upgrade automation software and hardware, including desktops and servers on a regular schedule to maintain capability for future upgrades and add-ons.</p>	<p>More library instruction in use of catalog, online resources, district priority applications (Inspiration, PowerPoint, movie, etc)</p> <p>Flexibility of open access schedule and better computer resources will enable library to support project-based instruction when students need access in groups or individually</p>

4. Access Student per Instructional Computer-Portable and Handheld Devices

Current Conditions	Intermediate Steps	Indicators of Success
<p>The district utilizes portable devices such as mobile laptop carts with 20 laptops, alpha smarts, science lab probes, graphing calculators, digital cameras, etc. appropriate to their grade level. (State DOE report is one year behind in inventory)</p>	<p>Assess effectiveness of mobile laptop carts (installed 06-07)</p> <p>Increase science lab probes, graphing calculators and other equipment as needed</p>	<p>Mobile carts are used in all middle schools across the district in major subject areas</p>

Benchmark #4: Accessibility to Technology

B. Software Upgrades

1. Software upgrades to meet the hardware upgrade cycle as the operating systems change.

Current Conditions	Intermediate Steps	Indicators of Success
District software applications are currently upgraded when hardware operating systems change Individual purchases at the schools may not be upgraded due to lack of centralized knowledge of the software needs	When hardware is purchased the district software is assessed to insure proper use As individual teachers and schools order software a log is kept at the central office for licensing purposes and therefore is able to be located to provide upgrades of software where appropriate.	All software is upgraded on a cycle with hardware to insure proper usage with operating systems All software purchases are documented to insure that both copyright and upgrades are adhered to

C. Computers for Teachers and Staff

1. Teacher Computers: The district considers it a goal to supply each teacher a computer in the classroom to be used as a teaching and learning tool in conjunction with a professional development program to teach them how to use it to integrate technology into their curricula.

Current Conditions	Intermediate Steps	Indicators of Success
Each classroom teacher has a computer and printer in their classroom for their use while at school. All Fletcher Maynard teachers have laptops based on their 1-to-1 laptop initiative. Some science teachers under a grant initiative received a laptop computer.	Develop a professional development plan for teachers to know how to use computer and software for instruction.	All classroom teachers in the district are issued a computer in the classroom and participate in professional development courses to help them use it effectively in the classroom and professionally.

2. Administrative Laptops

The district provides Principals, Assistant Principals, Deans, and Curriculum Coordinators with laptops.

Current Conditions	Intermediate Steps	Indicators of Success
All principals, assistant principals and deans of students and curriculum at CRLS have year 2006 laptops. Curriculum coordinators currently have a mix of laptops and desktops. Some of them are 3-5 years old.	Purchase new laptops for curriculum coordinators in FY 08. Monitor performance and effectiveness of technology for school-based administrators and curriculum coordinators. Prepare plan for replacement cycle in future years.	District provides laptops for principals, assistant principals, deans and curriculum coordinators.

3. Central Office Computers

Benchmark #4: Accessibility to Technology

The district provides District administration and operations staff with up-to-date computers, printers and resources.

Current Conditions	Intermediate Steps	Indicators of Success
District administration offices and other operational offices/departments such as finance, human resources, student achievement and curriculum, bi-lingual, food service, transportation, and purchasing have up-to-date computers, printers, and related technology. (Year 2005-2006 installed new computers for HR, finance and purchasing departments.)	Continue to monitor performance of computers in the district administration offices and develop replacement cycle as appropriate.	District provides computers, printers and related technology to support administration and operations staff.

4. Personal Data Assistants

The use of Personal Data Assistants (PDA) used in various curriculum areas.

Current Conditions	Intermediate Steps	Indicators of Success
PDAs are being piloted with the secondary PE teachers to enter attendance and grades into the Star_Base student information system. The PDAs have Physical Education Manager software program for grading that utilizes a custom rubric system and Fitness testing software to record various tests. We also vide tape various sporting events to be telecast, analyzed by coaches, or used in electronic portfolio.	Explore the use of PDAs in other curriculum areas that might be appropriate.	PDA and accompanying hardware and software are provided for areas of the curriculum that are deemed appropriate for this type of technology.

D. Technical Support

The district makes it a commitment to provide technical support to each building and district office.

Current Conditions	Intermediate Steps	Indicators of Success
<p>There are 2 technicians who provide support to the 12 elementary schools – a ratio of 1 technician per 600 computers.</p> <p>There are two technicians assigned to the high school establishing a 1 technician per 400 computers. One network administrator. One web administrator. One help desk position.</p>	<p>With the increased number of technological purchases and sophistication of software driven curriculum, the district must continue to analyze staffing levels.</p> <p>In order to provide timely in-classroom technical support and encourage and support effective teaching and learning, the district is encouraged to support a school-based</p>	<p>The district provides technical support in a timely manner so that the technical issues will not adversely affect teaching and learning as well as school operations.</p> <p>Each school will have a school-based support for level 1 troubleshooting and assistance to teachers, students and staff.</p>

Benchmark #4: Accessibility to Technology

<p>One database administrator. Each school has a technology technical assistant or technology integration specialist to help teachers on a daily basis and provide initial diagnostic assistance. This building based support person is key resource for teachers to provide adequate and timely in-classroom support.</p>	<p>technology teacher or assistant. FY 07-08 budget includes new computer technician.</p>	
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E. Security

The district will have a comprehensive physical security plan for all computers, printers, and related technology devices

Current Conditions	Intermediate Steps	Indicators of Success
<p>Director of Security, COO, and Director of Facilities are working on a security audit of all school buildings. Custodial and teachers/staff have been trained on securing 1st floor windows Teachers are receiving instruction on securing computer related equipment. Locking cable systems are in place to lock computers and printers to furniture to deter theft.</p>	<p>Audit each school and verify computer locking systems are installed on computers and printers. Conduct random physical inspections of each school after school hours and provide feedback on results.</p>	<p>The district will have a comprehensive physical security plan for all computers, printers, and related technology devices and reduce the number of thefts each year towards a goal of 0 thefts.</p>

Benchmark 5: Infrastructure for Connectivity

This benchmark focuses on Internet access, networking, operations and Internet technology.

A. Internet Access & Networking

Current Conditions	Intermediate Steps	Indicators of Success
<p>Some schools are using wireless networking to support the use of laptops by students and staff for teaching and learning. There is increasing demand for wireless capacity at schools by staff, for example, to facilitate special education meetings (IEP) with access to real-time student data and Internet based systems. Curriculum development and writing is another example of how laptops and</p>	<p>Conduct a wireless connectivity audit in all school locations. Based on results, create a design and implementation plan for secure, reliable wireless access in schools where appropriate. Explores administrative use of wireless devices, such as laptops or PDAs, to complete administrative tasks more efficiently such as classroom observations.</p>	<p>Wireless access to network and Internet resources will be available throughout the school department locations.</p>

Benchmark #5: Infrastructure for Connectivity

<p>wireless computers would improve data gathering and analysis.</p> <p>Additional purchases of mobile computer labs using laptops in a cart make wireless access necessary in classrooms and throughout schools.</p> <p>CPSD shares a T-3 connection to the internet with the city. Although this connection is adequate for the majority of connection requirements, there are times during the day that internet browsing slows down.</p>	<p>Explores solutions to maximize CPSD use of existing bandwidth such as packet shaping and web caching technologies.</p>	
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2. Servers

The district provides technical services and adequate server hardware and software for network applications, email, web publishing, and secure file sharing, including data backup.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Each school received a new application server and file storage server in 2006.</p> <p>Each department employee is provided storage capabilities for files on centralized servers, equipped with backup routines to recover files as needed.</p> <p>The school department issues email and networking accounts to staff for email, calendaring, and online discussion and storing/sharing school related documents.</p> <p>Students in K-12 are also provided storage capabilities on centralized servers equipped with backup routines.</p> <p>Currently there is no remote access by staff or students to district file storage servers. Reason: lack of a virtual private network system to ensure data security.</p>	<p>This goal has largely been met.</p> <p>However, the MIS department will investigate virtual private networking tools as a way to allow teachers and staff secure remote access from outside the CPS buildings, i.e., home, to their data stored on CPS servers.</p> <p>MIS department will redesign its current data backup strategy to ensure the district meets new state and federal backup and archiving of electronic records guidelines.</p> <p>The district will continue to monitor technology trends and improvements in the industry to collaboration software tools and make recommendations for upgrades and/or changes in the future</p>	<p>The district provides technical services and adequate server hardware and software for network applications, email, web publishing, and secure file sharing, including data backup.</p>

B. Information Technology and Communication

1. Administrative Communication

All administrators are connected via laptops, voice and data to key district personnel and supporting departments.

Benchmark #5: Infrastructure for Connectivity

Current Conditions	Intermediate Steps	Indicators of Success
<p>Administrators are equipped with laptops and Nextel phones for improved communication with district staff and supporting departments such as transportation, food service, special education and district administration.</p> <p>Some Nextel connectivity is not adequate in the school buildings.</p>	<p>Continue to work with Nextel/Sprint on ways to improve coverage in our buildings.</p> <p>Look for ways to integrate PDA/phones to improve efficiency of administrative work.</p>	<p>All administrators are connected via voice and data to key district personnel and supporting departments.</p>

2. Administrative Electronic Tools

The district provides electronic tools for improved efficiency in departments such as human resources, finance, payroll and purchasing.

Current Conditions	Intermediate Steps	Indicators of Success
<p>The district uses PeopleSoft for human resources and finance functions.</p> <p>The district's human resources department implemented a web based job applicant system from School Stream for hiring staff and teachers.</p> <p>A forms management module was also purchased from School Stream in 2004 and human resources and finance departments have begun to convert paper forms to electronic format. In addition, the forms management module has electronic routing technology to allow for electronic signatures/approvals on forms as needed.</p>	<p>Continue to work with Principals and hiring managers on more efficient use of the job applicant system.</p> <p>Increase the use of the forms management system to develop more efficient system of setting up of requisitions, service contracts, time sheets, vouchers, and purchase orders within CPS.</p>	<p>The district provides electronic tools for improved efficiency in departments such as human resources, finance, payroll and purchasing.</p>

3. CRLS Flat Panel Display

CRLS will have flat panel electronic displays installed in the building to communicate information to staff and students.

Current Conditions	Intermediate Steps	Indicators of Success
<p>There is a single analog line electronic message board in the cafeteria for all of CRLS that is sometime in use. It is old and outdated.</p> <p>School announcements are made via</p>	<p>The high school has purchased a 60" flat panel display for the Main Cafeteria with state of the art digital signage technology to display announcements, student projects such as digital art, photo, and video.</p>	<p>Students and staff will be better informed through this multimedia display technology and will be able to share more information with students and staff</p>

Benchmark #5: Infrastructure for Connectivity

<p>the PA speaker system and are not always effective at reaching students and staff.</p> <p>School newsletter “Did you know (DYK)” is produced however not every student/staff takes time to pick one up and read it.</p>	<p>After the beta testing of this technology, the high school will expand the use of these electronic display units throughout the building so staff and students can be made aware of events, opportunities, and school-wide activities.</p>	
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4. Cable TV/Ed Access

The district will install Cable TV access to all schools and provide cable and Educational access programming throughout schools.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Cable TV access varies by location.</p> <p>One fiber connection established with the Media Café for School Committee broadcast via new Media Arts Center.</p>	<p>Conduct an inventory of current cable access in each school building.</p> <p>Perform audit of internal coax cabling in each school.</p> <p>Educational Access department to work on this project, as appropriate, in order to find ways to share information over this cable TV network such as student video projects and live and taped transmissions to the education channels – e.g. field house, Russell Field, etc.</p> <p>Acquire funding and hardware for connecting sites.</p>	<p>Cable TV access is provided in all school locations.</p> <p>Fiber connects key city & school locations to Ed Access Media Arts Center for cable casting live and taped programming via the CEA channels.</p>

5. Telecommunications/Phone System

The district provides a phone system with phones in each classroom and office and voicemail for all teachers and staff.

Current Conditions	Intermediate Steps	Indicators of Success
<p>The phone systems used by schools in the district have been upgraded recently, but vary in age and capabilities. There is voicemail for teachers and phones in most classrooms.</p>	<p>Facilities and Plant Maintenance along with MIS dept staff will explore new unified messaging systems technology and VOIP (voice over IP) and create plan to upgrade systems to accommodate all staff and reflect current technology.</p>	<p>The District provides phone system with phones in every school classroom and office and voicemail for all teachers and staff.</p>

6. Connect-Ed

The district utilizes Connect-Ed phone messaging system to share news and events with families as well as communicate emergency situations, as needed

Current Conditions	Intermediate Steps	Indicators of Success

Benchmark #5: Infrastructure for Connectivity

<p>This is year two of the districts use of automated phone messaging to families making them aware of school events, early release days, student performances and curriculum nights to increase parental involvement.</p>	<p>Principals are trained on the ability of the system to communicate with families.</p>	<p>The district will provide the Connect-Ed system in order to share information with families via telephone and messaging technology.</p>
<p>The system is also used to call families if a student is absent or tardy from school.</p>	<p>Provide reports on effectiveness of Connect-ED to all school principals.</p>	<p>100% of schools use Connect-ED phone messaging system for attendance and outreach at least 3 times a year.</p>
<p>70% of the schools are using the system for attendance or outreach.</p>	<p>Conduct additional training for principals on the use of the system as necessary.</p>	

7. Web Portal- Edline

The district has a comprehensive web-based School/Teacher to Parent/Student information portal (web portal).

Current Conditions	Intermediate Steps	Indicators of Success
<p>Comprehensive system currently not available.</p> <p>Curriculum standards are published and found on the district website.</p> <p>Some teachers are utilizing class websites and electronic grade books on their own, but there is no district standard tool(s).</p>	<p>Research various options as well as explore internal development of a system to improve information sharing with parents/guardians and students.</p> <p>Recommendation to be made for 2007-2008 school year implementation.</p> <p>Funding source needs to be identified and additional resources provided as needed.</p>	<p>The District has a School/Teacher to Parent/Student information system with access to curriculum information, class web pages with homework assignment info, and student grades via secure web-based tool(s).</p> <p>Parents and students are able to check their grades online as well as class assignments/projects calendar.</p> <p>Teachers use the web as a communication tool and to provide information about their class work to students, parents, and community.</p> <p>Parents and students are able to communicate with faculty online.</p>

8. Electronic Report Card

The district uses standards-based electronic report cards/ progress reports

Current Conditions	Intermediate Steps	Indicators of Success
<p>A committee under the direction of the Deputy Superintendent is discussing and developing recommendations for district wide progress report standards</p> <p>Many schools have begun to use the student information system (SIS), Star_Base, to convert from paper system to electronic format</p>	<p>Committee needs to communicate recommendation to MIS department to be able to plan for conversion of paper report cards to electronic version</p> <p>Training of staff as well as teachers is necessary</p>	<p>Standards based progress/ report cards generated by web-based system is used in all elementary schools</p>

Benchmark #5: Infrastructure for Connectivity

9. Data Warehouse

District uses a data warehouse for district and school benchmark reports as well as longitudinal analysis of student achievement.

Current Conditions	Intermediate Steps	Indicators of Success
The District has a data warehouse system implemented in 2004 to produce the district and school benchmark reports and provide other requested reports as necessary. Currently used by central administration and reports to schools.	During the 2007-2008 school year, develop the structure and reporting process of the system to track student performance over time. Implement the new system on a pilot basis in 07-08 .-school year. Prepare for full implementation and use in the 08-09 school year.	The District has a system to determine individual student growth over time.

10. Internet Blocking Policy

The district has installed a website blocking solution to comply with Children’s Internet Protection Act and receive federal funding which requires Internet safety software be used by K-12 schools.

Current Conditions	Intermediate Steps	Indicators of Success
Students and teachers discover some websites blocked for teaching and research when they try to access them at school. Teachers do not understand who to communicate with to un-block sites, or why they are blocked.	Work with MIS, deans, principal, tech advisory, to establish a policy that is clear and understood around Internet safety and ensure that the policy is clearly communicated to teachers and students.	Educational websites are accessible to students and teachers when needed.

Benchmark 6: Access to the Internet Outside of the school day

This benchmark includes informational websites, greater access to computers and the Internet within Cambridge schools and community agencies, public access to Cambridge’s library catalog and secure access to other online references.

A. Web Site Development and Statistics

District and school personnel manage school websites that include information for parents and Cambridge community.

Current Conditions	Intermediate Steps	Indicators of Success
The school department has a web site and each school has their own school website which utilizes a content management system, managed by a dedicated web administrator. Content is published and managed by designated school staff using this system. Each school web site and district web site includes school events, news and curriculum information for employees, parents and students.	This goal has largely been met. School personnel must continue to keep the information, news, and events “fresh” and up-to-date. Review and purchase website statistical software to collect statistics on site traffic of all websites.	The district provides up-to-date websites that include information for parents and Cambridge community. Statistical information on site traffic is available to staff for evaluating site design and effectiveness.

Benchmark #6: Access to the Internet Outside the School Day

Student class work is displayed online where appropriate.		
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B. Access to computers and Internet within schools.

The district is committed to providing access to computers and Internet for all Cambridge Public School students.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Many of the schools have extended day programs coordinated by City of Cambridge, as well as school department making use of the school district's buildings and resources, including technology.</p> <p>City of Cambridge Public Libraries, Teen Centers and various public housing developments are equipped with computers, printers and Internet access.</p> <p>Beta testing is underway of wireless access via City of Cambridge WIFI project.</p>	<p>Joint Committee formed by City Hall - Digital Divide to examine the lack of computers and Internet access at home for low income families.</p> <p>Explore ways to create after-school technology programs for students.</p> <p>Publish a list of places where students can access the Internet after school hours on the district web site.</p>	<p>The district is an active partner with City Hall in the on-going Cambridge WiFi and Digital Divide projects.</p> <p>The district works with City of Cambridge after school programs to find out where students and staff have access to the Internet outside of the school day. This information is published on the district web sites for students.</p>

C. Access to library and online resources.

To provide and promote public access to students, teachers and the Cambridge Community's online library catalog.

Current Conditions	Intermediate Steps	Indicators of Success
<p>The district's Library Media catalog is available on the CPS intranet only.</p>	<p>Complete post-automation database cleanup so holdings accurately reflect collections; complete weeding and updating projects in critical areas of the curriculum</p>	<p>Catalog accessible through the CPS website, resulting in increased knowledge about children's and young adult literature, collection use, search skills, and interlibrary loan.</p>

To promote access to students, staff, and families to online reference sources through library cards or passwords.

Current Conditions	Intermediate Steps	Indicators of Success
<p>Metrowest resources available remotely with library card ID numbers. <i>TeachingBooks.net</i>, <i>African American History online</i>, and <i>Grolier's Online</i> available with district password.</p>	<p>Promote access through home/school communications, district and library website, and other public information outlets.</p>	<p>Understanding of a "virtual library" demonstrated through access to resources sponsored by libraries but not restricted to physical space. Increased traffic reflected in usage statistics.</p>

Appendix

National and State Technology Standards

- A. For Students: Massachusetts Recommended K-12 Technology Literacy Standards**
- B. For Teachers: National Educational Technology Standards for Teachers (NETS)**
- C. For Administrators: Technology Standards for School Administrators (TSSA)**

Massachusetts Recommended K-12 Technology Literacy Standards

December, 2007

The Massachusetts Recommended K-12 Technology Literacy Standards incorporate the Information and Communication Technology (ICT) Literacy skills developed by the Partnership for 21st Century Skills; the National Educational Technology Standards for Students (NETS•S) developed by the International Society for Technology in Education (ISTE); as well as ISTE's 2007 draft NETS Refresh¹ These standards fall under three broad categories:

Standard 1. Demonstrate proficiency in the use of computers and applications, as well as an understanding of the concepts underlying hardware, software, and connectivity.

This standard

- Include proficiency in basic productivity tools such as word processing, spreadsheet, database, electronic research, email, and applications for presentations and graphics;
- Include conceptual understandings of the nature and operation of technology systems; and
- Includes learning and adapting to new and emerging technology tools.

Standard 2. Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society.

This standard

- Relates to social, ethical, and human issues. It promotes positive attitudes toward the uses of technology, as well as responsible use of information. This standard also includes recognition of technology's impact on civic participation, the democratic process, and the environment.
- Aims to ensure that students understand general rules for safe Internet practices, including how to protect their personal information on the Internet.
- Is designed to help students develop an awareness of the personal image that they convey through information they post on the Internet.
- Aims to ensure that students understand federal and state laws regarding computer crimes.
- Supports students in exhibiting leadership for digital citizenship.

Standard 3. Demonstrate the ability to use technology for research, critical thinking, problem solving, decision-making, communication, collaboration, creativity and innovation.

This standard

- Focuses on applying a wide range of technology tools to student learning and everyday life.
 - Aims to ensure that students will be able to use technology to process and analyze information.
 - Supports students in using technology to enhance critical thinking, problem solving and decision making.
 - Is designed to help students develop skills for effective technology-based communication.
 - Includes the use of technology to explore and create new ideas, identify trends, and forecast possibilities.
 - Aims to provide students with an awareness of how technology is used in the real world
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ISTE NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS (NETS) AND PERFORMANCE INDICATORS FOR TEACHERS

I. TECHNOLOGY OPERATIONS AND CONCEPTS

Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:

- A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE *National Educational Technology Standards for Students*).
- B. demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

II. PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

- A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
- B. apply current research on teaching and learning with technology when planning learning environments and experiences.
- C. identify and locate technology resources and evaluate them for accuracy and suitability.
- D. plan for the management of technology resources within the context of learning activities.
- E. plan strategies to manage student learning in a technology-enhanced environment.

III. TEACHING, LEARNING, AND THE CURRICULUM

Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers:

- A. facilitate technology-enhanced experiences that address content standards and student technology standards.
- B. use technology to support learner-centered strategies that address the diverse needs of students.
- C. apply technology to develop students' higher order skills and creativity.
- D. manage student learning activities in a technology-enhanced environment.

IV. ASSESSMENT AND EVALUATION

Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:

- A. apply technology in assessing student learning of subject matter using a variety of assessment techniques.

B. use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.

C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.

V. PRODUCTIVITY AND PROFESSIONAL PRACTICE

Teachers use technology to enhance their productivity and professional practice. Teachers:

A. use technology resources to engage in ongoing professional development and lifelong learning.

B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.

C. apply technology to increase productivity.

D. use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.

VI. SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES

Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK–12 schools and apply that understanding in practice. Teachers:

A. model and teach legal and ethical practice related to technology use.

B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.

C. identify and use technology resources that affirm diversity.

D. promote safe and healthy use of technology resources.

E. facilitate equitable access to technology resources for all students.

All classroom teachers should be prepared to meet the following standards and performance indicators.

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Technology Standards for School Administrators

I. Leadership and Vision:

Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.

Educational leaders:

- A.** facilitate the shared development by all stakeholders of a vision for technology use and widely communicate that vision.
- B.** maintain an inclusive and cohesive process to develop, implement, and monitor a dynamic, long-range, and systemic technology plan to achieve the vision.
- C.** foster and nurture a culture of responsible risk-taking and advocate policies promoting continuous innovation with technology.
- D.** use data in making leadership decisions.
- E.** advocate for research-based effective practices in use of technology.
- F.** advocate, on the state and national levels, for policies, programs, and funding opportunities that support implementation of the district technology plan.

II. Learning and Teaching:

Educational leaders ensure that curricular design, instructional strategies, and learning environments integrate appropriate technologies to maximize learning and teaching.

Educational leaders:

- A.** identify, use, evaluate, and promote appropriate technologies to enhance and support instruction and standards-based curriculum leading to high levels of student achievement.
- B.** facilitate and support collaborative technology-enriched learning environments conducive to innovation for improved learning.
- C.** provide for learner-centered environments that use technology to meet the individual and diverse needs of learners.
- D.** facilitate the use of technologies to support and enhance instructional methods that develop higher-level thinking, decision-making, and problem-solving skills.
- E.** provide for and ensure that faculty and staff take advantage of quality professional learning opportunities for improved learning and teaching with technology.

III. Productivity and Professional Practice:

Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others.

Educational leaders:

- A.** model the routine, intentional, and effective use of technology.
- B.** employ technology for communication and collaboration among colleagues, staff, parents, students, and the larger community.
- C.** create and participate in learning communities that stimulate, nurture, and support faculty and staff in using technology for improved productivity.
- D.** engage in sustained, job-related professional learning using technology resources.
- E.** maintain awareness of emerging technologies and their potential uses in education.
- F.** use technology to advance organizational improvement.

IV. Support, Management, and Operations:

Educational leaders ensure the integration of technology to support productive systems for learning and administration.

Educational leaders:

- A.** develop, implement, and monitor policies and guidelines to ensure compatibility of technologies.
- B.** implement and use integrated technology-based management and operations systems.
- C.** allocate financial and human resources to ensure complete and sustained implementation of the technology plan.
- D.** integrate strategic plans, technology plans, and other improvement plans and policies to align efforts and leverage resources.
- E.** implement procedures to drive continuous improvements of technology systems and to support technology replacement cycles.

V. Assessment and Evaluation:

Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation.

Educational leaders:

- A.** use multiple methods to assess and evaluate appropriate uses of technology resources for learning, communication, and productivity.
- B.** use technology to collect and analyze data, interpret results, and communicate findings to improve instructional practice and student learning.
- C.** assess staff knowledge, skills, and performance in using technology and use results to facilitate quality professional development and to inform personnel decisions.
- D.** use technology to assess, evaluate, and manage administrative and operational systems.

VI. Social, Legal, and Ethical Issues:

Educational leaders understand the social, legal, and ethical issues related to technology and model responsible decision-making related to these issues.

Educational leaders:

- A.** ensure equity of access to technology resources that enable and empower all learners and educators.
- B.** identify, communicate, model, and enforce social, legal, and ethical practices to promote responsible use of technology.
- C.** promote and enforce privacy, security, and online safety related to the use of technology.
- D.** promote and enforce environmentally safe and healthy practices in the use of technology.
- E.** participate in the development of policies that clearly enforce copyright law and assign ownership of intellectual property developed with district resources.

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