

**SALEM PUBLIC SCHOOLS
TECHNOLOGY PLAN
2007 - 2012**

**Salem Public Schools Technology Plan
2007 – 2012
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SALEM PUBLIC SCHOOLS MISSION STATEMENT

*By being student focused in everything we do,
by fostering best teaching and learning practices, and
by using the rich resources in the Salem community,*

the mission of the Salem Public Schools is

*to inspire students to realize their full potential and
to prepare them to function successfully in a complex world.*

SALEM PUBLIC SCHOOLS STRATEGIC GOALS

- **To maximize the opportunities for each student to succeed academically, emotionally, and socially to become productive members of a global economy and thoughtful participants in a democratic society.**
- **To develop, expand, and/or improve curriculum models and implement best practices.**
- **To provide leadership by establishing a learning community in Salem through partnerships with higher education, community organizations, and businesses.**
- **To establish a plan for ensuring successful leadership development and professional growth at all levels.**
- **To ensure safe and state-of-the-art facilities in order to provide optimal environments for student achievement and community learning.**

Benchmark 1: Commitments to a Clear Vision and Mission Statement

SALEM PUBLIC SCHOOLS TECHNOLOGY MISSION STATEMENT

Our mission is to develop a sense of community that reflects high expectations for each student and staff member; in which each student and staff member can develop to his/her maximum potential; in which each student and staff member can develop the skills, knowledge, and attitudes necessary to be contributing citizens in an interdependent, diverse, and technologically complex world; and in which learning is viewed as an exciting and rewarding life-long process. We will offer the best practice, research-based instruction obtainable through the effective use of allocated resources, provided in a manner that meets the needs of diverse learners. Technology will be key to this endeavor.

As our students move through their school experiences, they must have the training and background necessary to become skilled, productive members of a global work force. They must be capable of dealing with a rapidly changing work environment and they must see themselves as continual learners who know how and where to access information. It is also important that they develop the thinking and analytical skills needed to understand and solve the problems of tomorrow. By engaging in meaningful activities, our students will be able to access, question, apply, integrate, evaluate, and communicate essential knowledge.

The technology vision for our school district over the next five years is for all of our schools to be interconnected to each other and to the larger Salem community. We see a network that allows students to have access to a wealth of educational resources that include text, audio and multimedia content accessible anytime of the day from both classrooms and homes.

SALEM PUBLIC SCHOOLS TECHNOLOGY VISION

The following statements outline our vision of how technology can help us accomplish our above stated mission:

- Technology will aid our students in becoming skilled, knowledgeable, independent, and self-directed learners.
- Technology will help teachers to facilitate learning in an environment where students are active participants in what and how they learn.
- Technology will provide more opportunities for individualization, group activities, cooperative activities, and varied learning techniques.
- Teachers and professional staff will use technology effectively to share knowledge and problem solving techniques with colleagues and students and to communicate with the school community.
- Technology will provide teachers, students, administrators, parents, and other community members with a means of communication and information sharing that will improve administrative efficiency and foster a sense of community for all.
- Students, having used technology on a regular basis as an integral part of the regular program, will be prepared for opportunities and problems they meet in their respective communities.
- Technology will provide all students with equal access to information resources, collaborative experiences, and interdisciplinary library projects within the school, the community, the state, the nation, and the world.
- Teachers and professional staff will be provided with ongoing professional development and support for using technology for instruction and classroom management.

SALEM PUBLIC SCHOOLS DISTRICT GOALS

The plan utilizes the Administrative Curriculum and Content Area Standards (excluding #6 Communication) based upon the National Educational Technology Standards of the International Society of Technology in Education (ISTE):

- 1) Leadership and Vision – fostering a shared vision for comprehensive integration of technology
- 2) Learning and Teaching – ensuring that curricular design, instructional strategies, and learning environments integrate appropriate technologies into instruction
- 3) Productivity and Professional Practice - applying technology to enhance professional practice and to increase productivity
- 4) Support, Management and Operations – supporting technology so that it can be used to maximize both learning and administration
- 5) Assessment and Evaluation - planning and implementing comprehensive systems of effective assessment and evaluation
- 6) Communication – (additional district goal) implementing the technological infrastructure to increase electronic interaction throughout the school community
- 7) Social, Legal and Ethical Issues - understand these issues as they relate to technology and model responsible decision-making

Leadership and Vision

GOAL: To foster a shared vision for comprehensive integration of technology by providing technology staffing to ensure adequate, on-site support for curriculum integration, hardware and software maintenance, network management, and staff development.

STRATEGIES:

- Provide a district Director of Information Systems to implement the shared vision of the technology plan, in collaboration with the Superintendent, Assistant Superintendent, building administrators and the Department of Information Systems.
- Provide opportunities for ongoing education of district leaders about emerging technologies
- Maintain a shared commitment to technology resources among district leaders.

Learning and Teaching

GOAL: To integrate the meaningful use of technology for system-wide instruction from Pre-K through Grade 12, incorporating the Massachusetts Curriculum Frameworks.

STRATEGIES:

- Provide all students with technology resources that support academic success.
- Promote student ability to organize and explore information, develop higher order thinking skills, successfully collaborate with peers, and become lifelong learners.
- Provide opportunities for our students through internships and business partnerships outside the classroom.

Productivity and Professional Practice

GOAL: To apply technology to enhance professional practice to maintain administrative efficiency, increase access to information, facilitate instruction and assessment as reciprocal processes, and resulting in increased productivity.

STRATEGIES:

- Provide a data warehouse for all student data from which it can be stored and retrieved from across the district.
- Expand the use of electronic mail and other web-based resources to facilitate communication among staff, schools and home.
- Increase availability of tiered training for district personnel in storing, retrieving, analyzing and reporting data related to student achievement and curriculum assessment.
- Increase availability of tiered training to support effective use of technology in instruction.

Support, Management and Operations

GOAL: To support technology resources to maximize student learning and provide ongoing technological support to staff and administration.

STRATEGIES:

- Maintain a local area network in each building connected to a wide area network so that students and staff can communicate and share information across the district.
- Provide each staff member with the technology commensurate with their duties and responsibilities.
- Provide a district average ratio of one type 'A' computer (as defined by the DOE) for every three students.
- Provide one or more computer labs accessible to all students and staff after school and on weekends to ensure equity of access for all who do not have computers at home.
- Provide district staff as recommended by the DOE to effectively manage networks, maintain equipment and offer technical assistance to all staff/students.
- Provide full-time, site-based staff to act as liaisons and offer daily instructional support to technology users in each building.
- Seek and work with organizations, businesses, and non-profits in a collaborative manner to further technology in the district.
- Establish district-wide user accounts.

Assessment and Evaluation

GOAL: To utilize the assessment data for the analysis of student achievement to drive instructional practices.

STRATEGIES:

- Gather, store, analyze, and report information relating to student achievement, staff development, and curriculum assessment.
- Conduct collections of data to gauge the quality of service provided by the Department of Information Systems to the school district.

Communication

GOAL: To provide enhanced communication among parents, schools, educators, students, administrators and community business.

STRATEGIES:

- Increase the usage of the internal network by both staff and students to take advantage of network flexibility in accessing applications, information sharing and data storage.
- Increase the awareness by staff, parents and students of the Internet as a source for information, learning, research and all forms of communication.
- Implement tools to increase the level of communication among students, teachers and parents by enabling the sharing of related educational data such as progress reports and grades.
- Increase district communication with the community as a whole.
- Increase internal and external integration of district processes, information and communications.
- Expand use of website as a communications tool at the district, school, department and classroom levels.

Social, Legal and Ethical Issues

GOAL: To educate staff and students in appropriate uses of technology.

STRATEGIES:

- Model use of technology for safe, healthy, effective communication of ideas.
- Institute policies which comply with fair use of technology as defined by law.
- Promote practices which respect intellectual property, privacy and equal access to information.

LISTING OF CURRENT TECHNOLOGY COMMITTEE

The Salem Public Schools Technology Committee consists of representation from:

Salem Public Schools – principals, teachers
District Administration - Director of Information Systems
School libraries
Salem Access Television
Community at large – parents, residents, school committee members

BUDGET

All avenues for funding will be pursued. The Superintendent and Director of Information Systems have worked together with the School Committee over the past few years to establish funding precedents which include lease money to buy computers over a period of three years. That funding commitment must continue in order to insure that older computers will be replaced by Category A computers and the student: computer and teacher: computer ratios are maintained. Grant funding will also be used for equipment purchase and staff development expenses. Donations, when appropriate and when the donations will not result in a cost to the district will also be accepted. Below is an example of the minimum funding necessary in year one:

The Massachusetts Department of Education benchmarks for technical support require one full-time equivalent tech support person for every 100 to 200 computers and one .5 technology integration specialist for every 30 to 60 staff members. In order to meet these standards and effectively deliver a quality instructional technology program, we will need to add one computer technician with computer repair experience in the 2007-2008 school year to begin addressing these benchmarks.

The budget includes staffing, hardware, software, network equipment, maintenance, contracted services, supplies, staff development and support.

Budget Line	Detail	Budget Cost	Budget Source
Staffing	Director of Information Systems Network Manager Tech Integration Specialists District Technician Secretary School-Based Tech Facilitators Webmasters	\$ 514,230	Regular budget Grants Read Charitable Trust Fund
Hardware	Instructional Administrative RAM, accessories	\$ 125,000	Regular budget Leases Grants
Software	Instructional Administrative	\$ 20,000	Regular budget Grants
Network Equipment	Hubs Switches UPS Server backup	\$ 20,000	Regular budget
Maintenance	Repairs Parts Certification	\$ 25,000	Regular budget
Contracted Services	Internet access Software annual support	\$ 125,000	Regular budget E-rate
Supplies	Computer supplies	\$ 2,500	Regular budget
Staff Development	Training Workshops Mileage	\$ 20,000	Regular budget Grants
Other	Office supplies Dues, fees Security	\$ 10,000	Regular budget

The district leverages the use of federal, state and private resources.

The Salem Public Schools fully implement grants to support our programs. Entitlement grants, Title I-V, help to enrich and to supplement the program offerings at all levels, aid in reducing class size, assist in expanding professional development offerings, provide hard and software technology resources, and support instructional and enrichment programs for students. The Salem Public Schools are committed to providing the best possible educational experience for students by utilizing district funding to the fullest extent. Grant funding is a necessary element that enables the district to offer both core and expanded educational experiences for all students and staff.

The City of Salem utilizes an institutional cable network (I-NET), installed by Time-Warner Cable, Salem's former cable provider and maintained by Comcast, Salem's current cable provider. This two-way system capable of carrying video, audio and data signals connects not only all of the public school buildings in the city, but also many other public buildings and agencies as well. The I-NET works in conjunction with a c-band satellite dish and receiver located at Salem High School. With this equipment, Salem is able to receive and distribute educational, interactive programming such as the Annenberg/CPB Channel and Electronic Field Trips from Colonial Williamsburg.

Also deeply rooted in the school community is Salem Access Television (SATV), Salem's local access television center. The school system pays one yearly membership fee to SATV so that any student, teacher, parent or administrator wishing to produce school-related programming for air on SATV can do so at no charge. SATV takes this process one step further with its School On-Loan Equipment program, where video equipment belonging to SATV is housed in the individual schools and ongoing training and support is offered as long as minimum programming requirements are met. SATV also offers schools their facility for field trips, as well as their electronic community bulletin board for school announcements and cancellations.

District connections with Salem State College began in 1896 when Horace Mann was built as a lab school for Salem State College. Now teachers from both Saltonstall and Horace Mann lab schools as well as other Salem schools mentor college students at various points in their educational careers. In return, students have had the opportunity to use Salem State science labs, auditorium, dining commons and campus center. The Horace Mann students also use the south campus daily for PE classes. Recently, a paper recycling program has been established as a partnership with Salem State College. In addition, 50% of the salaries for the principals of the two lab schools are paid by Salem State College.

Target has also established a program with Salem schools through which a percentage of purchases made by the community who designate Salem schools is donated to the Salem schools. Other community businesses such as Wal-Mart, Seaport Credit, Crosby's, Beverly Cooperative Bank, Cyberspace, Cornerstone Books, YMCA, Boys and Girls Clubs, Campfire and many others support Salem Public Schools with many types of assistance, including financial support for specific projects and personal visits from employees who share their expertise with students.

Another group whose support began with their involvement in our original Technology Planning Team is the Foundation for Salem Public Education. This non-profit organization funds special projects which further students' educational experiences in science, math, the arts, and the humanities. The foundation has provided partial funding to the High School for a computer lab for writing across the curriculum and Internet access. They have also promised ongoing support for technology projects in the future.

We will continue to actively seek resources from outside sources such as local business partnerships and grant opportunities.

EVALUATION

Activity	Software	Timeline	Leadership	Budget
Student information management software is maintained which enables state reporting as required by the DOE	iPass	Ongoing	Director of Information Systems, , Data Analyst,	\$7000 annual maintenance
Staff information management software is being purchased to enable state reporting as required by the DOE	iStaff	Ongoing	Director of Information Systems, , Data Analyst,	\$3500 annual maintenance
eSPED	eSPED, eCHILD	Ongoing	Director of Pupil Personnel Services	\$25000 Annual maintenance
Testing analysis software is provided that enables administration to analyze MCAS and other testing data to improve student achievement	TestWiz.net, SRI, DIBBLES, GRADE, Terra Nova, BASC, Woodcock-Johnson (see Karen)	Ongoing	Director of Information Systems, Data Analyst, Principals, Literacy Support staff, Assistant Superintendent, Academic Chairs, SPED	TestWiz – \$1500; SRI – approx \$1000/school
Training for administrators, secretaries and teachers in using applications to analyze student test data	Various	Ongoing	Director of Information Systems, Data Analyst,	Regular School Budget

Activity	Instrument	Timeline	Leadership
Department of Information Systems will meet periodically with district stakeholders to keep apprised of technology needs	Meetings, email, telephone conferences	Ongoing	Director of Information Systems, Network Manager, Data Analyst,, Technology Integration Specialists
Department of Information Systems will conduct a user survey to identify areas of strength, areas of concern, and projected district needs in delivering a quality instructional technology program	Survey	Ongoing	Director of Information Systems
Department of Information Systems will use data collected from district stakeholders in devising and implementing future instructional technology initiatives	Technology plan	Ongoing	All Department of Information Systems Staff

Benchmark 2: Technology Integration

TEACHER AND STUDENT USE OF TECHNOLOGY

Activity	Software	Timeline	Leadership	Budget
All computers will have productivity software installed for word processing, database, spreadsheet, and presentation	AppleWorks for all grades and Microsoft Office for grades 6-12	Ongoing	Director of Information Systems, Computer Technician, Integration Specialists	AppleWorks – free; Office - \$52/license
All computers will have concept mapping software installed where needed (at least in the labs)	Inspiration and Timeliner	Ongoing	Director of Information Systems, Computer Technician, Integration Specialists	New license: Inspiration - \$22/license; Timeliner - \$30/license
Early literature software installed on appropriate computers	WiggleWorks Accelerated Reader	Ongoing	Director of Information Systems, Computer Technician, Integration Specialists	None
Second language acquisition software will be installed on appropriate computers	Rosetta Stone	Ongoing	Director of Information Systems, Computer Technician, Integration Specialists	Rosetta Stone - \$899/building
Provide student opportunities for internships and business partnerships outside the classroom	None	Ongoing	Guidance staff, school administrators	None
Online Professional Development	Web-based	Ongoing	Technology Integration Specialists	Grants Regular School Budget
Professional Development	Workshops, courses	Ongoing	Technology Integration Specialists	Grants Regular School Budget
Curriculum Design Teams	Various	Ongoing	Technology Integration Specialists	Grants
Just in Time Training	Atomic Learning Various	Ongoing	Technology Integration Specialists	Grants Regular School Budget
MCAS support software	Study Island	Ongoing	Technology Integration Specialists	Grants

**STAFFING
(Projected through 2012)**

Activity	Responsibilities
Director of Information Systems (1)	Responsible for the coordination of technology across the district, and for providing leadership in developing, implementing and evaluating a long range plan for the utilization of technology in all district instructional and administrative capacities by <ul style="list-style-type: none"> • Serving as district level administrator for technology • Creating a vision for the district technology program • Promoting digital communication throughout the community • Setting expectations for the implementation of technology • Supporting the instructional initiatives of the Salem Public Schools • Managing technology funds and assets across the district • Coordinating and supporting department staff • Facilitating professional development opportunities for staff • Evaluating the successful integration of technology into instruction
District Network Manager (1)	Responsible for the installation, maintenance and upgrading of all Salem Public School network infrastructure by <ul style="list-style-type: none"> • Design and installation of LANS and WAN • Manage networks that would include establishing and maintaining user accounts, security, access rights, etc. • Work with Internet Service Provider (currently Merrimack Education Center) to maintain, update, and troubleshoot hardware and software as needed • Provide assistance to staff and participate in staff development initiatives involving networks • Install, upgrade, and maintain software on all servers • Make recommendations regarding needs for expansion and upgrading • Document and maintain physical and logical diagrams of the network • Plan for and execute procedures to address disaster/failure recovery. At a minimum, this includes regular backup of files and safe storage of electronic documents • Troubleshoot hardware and software problems including virus protection • Provide software support including installation and troubleshooting • Install and maintain security firewall and other software and hardware to prevent unwanted access to the Salem Public Schools district computer systems. • Monitor Salem Public Schools district systems for outside computer attacks, hacking, virus invasion, etc. • Respond to security violations, stop violation, contact appropriate personnel to resolve violation; adhere to applicable Salem Public Schools district and governmental regulations and laws. • Monitor user activity for copyright violations, virus proliferation, and other illegal activities. • Respond to and correct security violations/problems on a 24-hour call-out basis. • Provide research and analyses for potential security exposures. • Assist in development of institution-wide computer security architecture to include disaster recovery and business resumption. • Managing work distribution for District Network Assistant

<p>District Network Assistant (1)</p>	<p>Responsible for the installation, maintenance and upgrading of all Salem Public School network infrastructure through the following:</p> <ul style="list-style-type: none"> • Install and maintain security firewall and other software and hardware to prevent unwanted access to the Salem Public Schools district computer systems. • Monitor Salem Public Schools district systems for outside computer attacks, hacking, virus invasion, etc. • Respond to security violations, stop violation, contact appropriate personnel to resolve violation; adhere to applicable Salem Public Schools district and governmental regulations and laws. • Monitor user activity for copyright violations, virus proliferation, and other illegal activities. • Respond to and correct security violations/problems on a 24-hour call-out basis. • Provide research and analyses for potential security exposures. • Assist in development of institution-wide computer security architecture to include disaster recovery and business resumption. • Establish a daily work plan with direction from District Network Manager I
<p>District Computer Technician (1)</p>	<p>Responsible for maintenance and repair of district hardware and software by</p> <ul style="list-style-type: none"> • Repairing, maintaining and upgrading computer hardware • Troubleshoots software problems related to operations' systems such as Macintosh, Windows, etc. • Installs new computers • Install, upgrade, and maintain client software on all workstations • Makes frequent contact support with all schools • Maintains filing records of repaired items/issues • Coordinates outside vendor repairs of district hardware • Acts as liaison with outside vendors for repairs that cannot be performed within the district • Establishes a daily work plan with procedures established by the Technology Director • Establish and maintain cooperative, effective, and courteous working relationships with technology team, teaching and administrative staff and the public • Any other duties or responsibilities assigned by the Technology Director • Managing work distribution for District Computer Technician Assistant
<p>District Computer Technician Assistant (1)</p>	<p>Responsible for maintenance and repair of district hardware and software by</p> <ul style="list-style-type: none"> • Installing new hardware and software • Regularly servicing computer hardware • Responding to requests for technical troubleshooting, maintenance and repairs across the district • Maintaining documentation of all maintenance and repairs • Establishing a daily work plan with direction from District Computer Technician

<p>Tech Integration Specialist (6 - 9)</p>	<p>Responsible for the effective use of technology to support instruction by</p> <ul style="list-style-type: none"> • Identifying effective practices that incorporate technology • Modeling effective teaching with technology • Utilizing student data in planning effective technology integration • Collaborating with teachers to develop appropriate, technology-rich lessons • Providing technology integration training and assistance to classroom teachers • Providing professional development on technology integration • Keeping current with changes in technology • Serving as a consultant to administration on technology issues • Researching, locating and evaluating curriculum resources • Evaluating hardware and software for purchase
<p>District Data Analyst (1)</p>	<p>Responsible for the management and maintenance of all digital student/staff data by</p> <ul style="list-style-type: none"> • Maintaining the student information system for the Salem Public Schools • Supervising the collection of student data Pre-kindergarten through Grade 12 • Submitting student data as required to the Massachusetts Department of Education • Providing training for administrative and support staff responsible for maintaining student data at the building level • Assisting in the extrapolation and analysis of student data • Generating reports as requested by administrators • Developing online curriculum support for staff • Providing training and support for implementation of iSTAFF – staff information system • Implementing use of automated report card system at the elementary level • Managing work distribution for District Data Analyst Assistant
<p>District Data Analyst Assistant (1)</p>	<p>Responsible for assisting in the maintenance of all digital student/staff data by</p> <ul style="list-style-type: none"> • Maintaining the student information system for the Salem Public Schools • Providing training for administrative and support staff responsible for maintaining student data at the building level • Assisting in the extrapolation and analysis of student data • Generating reports as requested • Developing online curriculum support for staff • Providing training and support for implementation of iSTAFF – staff information system • Providing training and support in the use of the automated report card system at the elementary level • Establishing a daily work plan with direction from District Data Analyst
<p>District Technology Secretary (1)</p>	<p>Works with the Director of Information Systems in providing support for technology across the district by</p> <ul style="list-style-type: none"> • Serving as the first point of contact between the community and the Department of Information Systems • Fostering communication among all members of the technology team • Managing files, records and correspondence for the Director • Assisting in the management of the Help Desk via the Technology Support System • Maintaining currency of software licensing database • Maintaining accuracy of School District calendar • Manage email • Completing other duties as deemed necessary by the Director

District Web Resource Assistant (1)	Works with the Director of Information Systems in providing web-based communication across the district by <ul style="list-style-type: none">• Upgrading district web site in a timely manner• Create, manage and maintain district web site• Fostering communication among all members of the technology team• Completing other web communications duties as deemed necessary by the Director• Providing training for community member use of district web resources
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Benchmark 3: Technology Professional Development

Technology professional efforts provide educators and staff with the skills necessary to enhance curriculum with technology resources. Professional development is also being held to support the implementation of automated report cards for grades 3, 4 and 5 teacher use.

Professional Development is also scheduled to continue integration of technology into the curriculum for classroom teachers and support staff. Productivity professional development also continues.

Atomic Learning was purchased through a DOE grant in 2006 to provide online professional development as needed for staff. Funding is to be continued through the regular budget.

Teacher training was also done this year in support of Study Island, an MCAS support application currently being used at all elementary schools. Parents also received an introduction to Study Island at some of the schools.

Salem continues to participate in a grant partnership with Beverly Public Schools addressing the use of virtual math manipulatives in grades 6 - 8 to improve math MCAS scores. Salem is also partnering with Ipswich Public Schools, Salem State and the Museum of Science through a grant that provides elementary science and classroom teachers with the opportunity to take online courses related to science instruction.

Benchmark 4: Accessibility of Technology

Students per Instructional Computer

- a. The ratio of students per Type A computer is 8.14.
- b. The ratio of students per Type A/B computer is 2.93.
- c. The ratio of students per any type of computer is 2.50.

Technical Support

Technical support is provided through one computer repair technician responsible for almost 1300 computers district-wide. Six of the elementary schools also have a school-based technology facilitator to assist in first-line technical support when the technology specialist is not in the school. Six of the elementary schools have half-time technology specialists who cannot be available during the entire school day. As budgetary allocations allow, full-time technology specialists will replace half-time technology integration specialists at each elementary school

Salem also supports TSS, an online technical support system which staff have been trained to access to report a hardware or network problem to the Department of Information Systems.

Benchmark 5: Infrastructure for Connectivity

Internet Access

Internet access is provided through MEC, Merrimack Education Collaborative for the entire district. Collins Middle School also has access through Comcast cable. Comcast cable service is expected to be supplied to the Nathaniel Bowditch School as well as the Salem High School by the end of 2007.

Networking (LAN/WAN)

Salem Public Schools are connected via T1 lines in a wide area network. Each school is also a local area network through which files are shared and access is available to these files from any networked computer in that building. Subject to budget allocations, T1 lines will be replaced by fiber by 2012.

The district plans to institute open/active directory across the district by 2010.

E-Learning Environments

Salem Public Schools was able to purchase licensing to Atomic Learning online tutorials in 2007 through DOE grant funding. Professional development will be done to acclimate staff to use this online learning environment.

Benchmark 6: Access to the Internet Outside the School Day

The district maintains an up-to-date web site that includes information for parents and the community-at-large.

Expansion of the iPASS system will allow parents to view student progress reports, grades, etc. by 2012.

To support integration of technology into the curriculum, the district will address access to computer resources for all students by 2010.

Appendix A: Salem Technology Standards Grades PreK - 2

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Identify the keyboard, mouse, monitor and printer. • Point, click and move mouse. 	<ul style="list-style-type: none"> • Identify the keyboard, mouse, monitor and printer. • Point, click and move mouse. • Begin to identify specific keys on the keyboard (esp. RETURN, SPACE BAR, ARROW KEYS). • Turn on the computer and printer. • Identify a CD and a CD drive. • Start an application program. 	<ul style="list-style-type: none"> • Explore keyboard using both hands. • Locate letters and numbers on the keyboard. • Use a CD and CD drive. • Identify the menu bar. • Begin to print documents with support. • Open an application program. • Quit an application program. 	<ul style="list-style-type: none"> • Use both hands on the keyboard. • Insert a floppy disk. • Save to a floppy disk or hard drive with support. • Send information to a printer. • Teacher-directed access to the Internet.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students navigate through the age-appropriate software. • Use child's game such as "Simon Says" to teach the children to identify the major components of the computer. 	<ul style="list-style-type: none"> • Students access software programs to support curriculum. • Teacher models appropriate terminology as the students navigate through the software. 	<ul style="list-style-type: none"> • Teacher models how to open/close a specific application. 	<ul style="list-style-type: none"> • Teacher models how to save documents on a floppy drive or on the hard drive. • Teacher models how to access the printer to print their documents. • Teacher emphasizes use of both hands on the keyboard.

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Take turns when using software. 	<ul style="list-style-type: none"> • Take turns when using software. • Work with a partner on a project. 	<ul style="list-style-type: none"> • Respect the work of your peers. • Work with a partner on a project. 	<ul style="list-style-type: none"> • Respond to another's work in a positive way.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students use technology learning station alone or in pairs. 	<ul style="list-style-type: none"> • Students use technology learning station alone or in pairs. 	<ul style="list-style-type: none"> • Students work independently at the technology learning station alone or in pairs. • Students distinguish between what is their work and someone else's work. 	<ul style="list-style-type: none"> • Students observe teacher modeling of positive response to peer work.

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
N/A	N/A	N/A	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
			<ul style="list-style-type: none"> • Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
			<ul style="list-style-type: none"> • Teacher talks with students about technology learning station rules.

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i> N/A	<i>Learning Standard:</i> N/A	<i>Learning Standard:</i> Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	<i>Learning Standard:</i> Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i> <ul style="list-style-type: none"> • Explore drawing tools in teacher directed activities. 	<i>Teaching Emphasis:</i> <ul style="list-style-type: none"> • Introduce word processing through teacher directed activities. • Use teacher created templates.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i> <ul style="list-style-type: none"> • Students use a computer to draw a picture to accompany simple sentences. • Students use drawing tools to create shapes and patterns related to the mathematics curriculum. 	<i>Teaching Examples:</i> <ul style="list-style-type: none"> • Students complete a topic-based Fill in the Blank template to learn basic word processing skills such as capitals and punctuation.

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
N/A	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
	<ul style="list-style-type: none"> • Use age-appropriate multimedia software to support curriculum. 	<ul style="list-style-type: none"> • Use age-appropriate multimedia software to support curriculum. 	<ul style="list-style-type: none"> • Use age-appropriate multimedia software to support curriculum.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
	<ul style="list-style-type: none"> • Students use CDs such as Living Books, WiggleWorks, and Dr. Seuss titles to enhance literacy development. 	<ul style="list-style-type: none"> • Students use software (Kid Pix, WiggleWorks, AppleWorks) to create drawings, to demonstrate their knowledge of patterns, dinosaurs, and weather. 	<ul style="list-style-type: none"> • Students create a class book including text, graphics, stamps and original artwork.

GRADE PreK	GRADE K	GRADE 1	GRADE 2
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
N/A	N/A	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
		<ul style="list-style-type: none"> • Exposure to telecommunications through teacher demonstration. 	<ul style="list-style-type: none"> • Introduce the Internet as an information resource through teacher demonstration.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
		<ul style="list-style-type: none"> • Teacher accesses a web site to enhance a curriculum topic (ex., http://www.pbs.org to access Arthur and Friends for language arts curriculum). 	<ul style="list-style-type: none"> • Teacher demonstrates the use of a web site as an information source (ex., http://www.enchantedlearning.com for insect data).

Appendix A: Salem Technology Standards Grades 3 - 5

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> •Open/close appropriate software applications and navigate using scroll bars, arrow keys, special keys and mouse. •Create and name folders with support. 	<ul style="list-style-type: none"> •Begin formal keyboarding skills. •Use a scanner and digital camera with support. •Understand the use of the Chooser to choose a printer. •Locate and save to a designated folder independently. 	<ul style="list-style-type: none"> •Intermediate keyboarding. •Use scanned or digital images in a curriculum project with support.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students create a folder on the hard drive to store documents. 	<ul style="list-style-type: none"> • Students use keyboarding program to develop keyboarding skills. • Teacher models how to use scanners and digital cameras. 	<ul style="list-style-type: none"> • Students scan original art for use in a curriculum project. • Students take digital photos of science experiments and insert into journals. • Students use digital photos of school events to create projects such as a newsletter or yearbook.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Follow classroom rules for responsible use of computers. 	<ul style="list-style-type: none"> • Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). 	<ul style="list-style-type: none"> • Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Teacher models responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior. 	<ul style="list-style-type: none"> • Students discuss responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior. 	<ul style="list-style-type: none"> • Students discuss responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet (return signed AUP form). • Understand copyright issues. • Discuss damage or unauthorized use of another person's equipment and files. 	<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet. • Discuss importance of citing sources. • Discuss accountability for damage or unauthorized use of another's files or equipment. 	<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet. • Understand how technology can distort information and why it is necessary to evaluate electronic sources of information.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Teacher and students read the Acceptable Use Policy, sign and agree to adopt it. 	<ul style="list-style-type: none"> • Teacher guides discussion on the importance of citing source information. • Teacher reviews the District's Acceptable Use Policy stressing accountability for damage or unauthorized use of equipment. 	<ul style="list-style-type: none"> • Teacher and students review the District's Acceptable Use Policy. • Students compare their opinions with television commercial messages.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum.	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum.	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum.
WORD PROCESSING	WORD PROCESSING	WORD PROCESSING
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Develop word processing skills to facilitate the writing process. • Insert images from within the application. 	<ul style="list-style-type: none"> • Develop word processing formatting skills. • Introduce spell check dictionary. 	<ul style="list-style-type: none"> • Develop beginning desktop publishing skills, such as multiple columns in a newspaper, brochure or book format. • Use thesaurus and dictionary tools.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students write a one-page paper about a curriculum related topic such as the water cycle or the history of Salem or Massachusetts. • Students add clip art images to their projects. 	<ul style="list-style-type: none"> • Students learn formatting skills such as indentation, centering, line spacing, font choice, letter size and style within curriculum related documents. • Students begin to use the spell checker with teacher assistance. 	<ul style="list-style-type: none"> • Students create a brochure to demonstrate their knowledge of a curriculum related topic such as planets, solar system, colonial America, or patterns in algebra.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
• Collect, enter and manipulate data in a teacher-created database.	• Create a simple database with support.	• Create a simple database to use in a curriculum project.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
• Students use a teacher-created database to enhance their curriculum-related projects such as the study of plants and seeds or a social studies or language arts topic.	• Students learn how to create a database with information about the members of their class.	• Students create a simple database to collect information on curriculum topics such as the solar system, ecosystems, or explorers.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
N/A	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
	• Collect, enter and manipulate data in a teacher-created spreadsheet.	• Create a simple spreadsheet related to a curriculum project.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
	• Students use a teacher-created spreadsheet to enhance their learning about rocks and minerals (density, hardness, color, hardness, type).	• Students create a simple spreadsheet as part of a curriculum project on planets (distance from the sun, size of the planet, number of moons, etc.)

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Use multimedia software to create a simple slide show. 	<ul style="list-style-type: none"> • Collect and enter information in a teacher-directed slide show. • Use and print from an encyclopedia CD or the Internet for a curriculum related project. 	<ul style="list-style-type: none"> • Create a multimedia project using text, graphics and resources from CDs and the Internet with teacher support.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students create a simple slideshow using Kid Pix or AppleWorks to illustrate word problems in Math or related to a different curriculum topic. 	<ul style="list-style-type: none"> • Students create a slideshow project related to a curriculum topic using multimedia software such as HyperStudio or AppleWorks. • Students use information from an encyclopedia CD or the Internet for a curriculum related project. 	<ul style="list-style-type: none"> • Students will gather information from an encyclopedia CD and/or the Internet for use in a curriculum-based slideshow.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Use the Internet to gather information for curriculum projects using teacher-selected sites. 	<ul style="list-style-type: none"> • Participate in a basic online project. 	<ul style="list-style-type: none"> • Participate in a curriculum related online project.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students access weather-related web sites to gather current information on weather (ex., http://www.weather.com) 	<ul style="list-style-type: none"> • Students use teacher-created webquests or online scavenger hunts to support learning of curriculum-related topics. 	<ul style="list-style-type: none"> • Students use web sites such as The WebChannel, Sites Alive!, and ThinkQuest for online collaboration to support learning of curriculum-related topics.

GRADE 3	GRADE 4	GRADE 5
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Gather information from a variety of sources, including teacher-selected web sites, CD-ROM encyclopedias, etc. 	<ul style="list-style-type: none"> • Use an Internet search engine. 	<ul style="list-style-type: none"> • Evaluate and interpret information gathered from a search engine.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students research plants using a variety of sources including web sites, CD-ROM encyclopedias, etc. 	<ul style="list-style-type: none"> • Students use an age-appropriate search engine (Ask Jeeves for Kids, Yahoo!igans, Google) with guidance to research a curriculum topic. 	<ul style="list-style-type: none"> • Students discuss the results of a search for relevance, accuracy and appropriateness.

Salem Technology Standards Grades 6 – 8

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> •Demonstrate efficient keyboarding skills. •Format / initialize disks. •Save a file to the desktop, the hard drive, and floppy disk. •Select a printer and print a document with appropriate page setup and orientation. 	<ul style="list-style-type: none"> •Operate peripheral equipment (e.g., scanners, digital cameras, camcorders, etc.) •Use editing and formatting features in applications to produce visually effective documents. •Save a file to the desktop, the hard drive, file server and appropriate external media. •Insert media (graphics, video, sound) into documents with support. 	<ul style="list-style-type: none"> •Insert media (graphics, video, sound) into documents.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Student keyboarding skills are evaluated through testing. • Students take keyboarding course based on results of testing. • Students initialize and name disks. • Students review creating, saving and printing a curriculum project using teacher criteria for page setup and orientation. 	<ul style="list-style-type: none"> • Students use scanned images or digital camera photos to create a photo essay relating to a curriculum topic such as “the Role of Women in the Civil War”. 	<ul style="list-style-type: none"> • Students create multimedia presentations about a curriculum-related topic such as “Building the Transcontinental Railroad”.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.	Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.	Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Understand the basic differences of computer operating systems. • Understand concept and function of connectivity and networking (via Intranet, Internet World Wide Web). • Identify appropriate operating system icons and symbols. 	<ul style="list-style-type: none"> • Begin to select appropriate software/ hardware to create a variety of documents. 	<ul style="list-style-type: none"> • Identify and solve common hardware and software problems (e.g., frozen screen, disk error, printing problems.)
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students use different types of computers in classrooms, labs and home. • Students access and save to a document server. • Students conduct research for various curriculum topics using the Internet. 	<ul style="list-style-type: none"> • Students use appropriate software to create graphs, write essays, create databases, prepare multimedia presentations and draw. 	<ul style="list-style-type: none"> • Teacher models appropriate actions to take in order to solve common hardware and software problems. • Students troubleshoot with teacher supervision the possible causes of hardware and software problems.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). 	<ul style="list-style-type: none"> • Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). 	<ul style="list-style-type: none"> • Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students develop a list of rules used at home, compare those rules to school rules and discuss similarities and differences. 	<ul style="list-style-type: none"> • Students develop a list of rules used at home, compare those rules to school rules and discuss similarities and differences. 	<ul style="list-style-type: none"> • Students develop a list of rules used at home, compare those rules to school rules and discuss similarities and differences.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet (return signed AUP form). • Evaluate Internet web sites for educational content. • Demonstrate ethical and legal behavior in copying files, applications and media. • Demonstrate knowledge of email etiquette. • Understand potential problem of computer viruses and exercise caution in opening email attachments from unknown sources. • Demonstrate safe practices for sharing personal information via email and the Internet. 	<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet. • Validate a web site for authenticity (know site origins through: domain name – org, com, etc: know who the author is or when the site was last updated). 	<ul style="list-style-type: none"> • Understand the District's Acceptable Use Policy for the Internet. • Demonstrate knowledge of how information can be distorted by electronic media and know how to evaluate information sources in all media.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Teacher and students read the Acceptable Use Policy, sign and agree to adopt it. • Students use rubrics to evaluate web sites. • Teacher guides discussion about ethical and legal behavior in copying files, applications, media, e-mail, viruses and safe practices for sharing information via e-mail/Internet. 	<ul style="list-style-type: none"> • Teacher and students review the Acceptable Use Policy. • Students validate a web site for authenticity through the use of rubrics and worksheets to know site origins through: domain name – org, com, etc; know who the author is, or when the site was last updated. 	<ul style="list-style-type: none"> • Teacher and students review the Acceptable Use Policy. • Students use rubrics to evaluate the veracity of information sources in all media.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> Develop intermediate word processing skills, such as copy/paste, bulleting, and outlining. 	<ul style="list-style-type: none"> Continue intermediate word processing skills, such as formatting tools, and adding graphics to text. 	<ul style="list-style-type: none"> Continue intermediate word processing skills, such as headers, footers and page numbers.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> Students write coherent compositions with a clear focus and supporting ideas through the creation of an outline with appropriate software. 	<ul style="list-style-type: none"> Students write compare/contrast essays and add clip art in a curriculum-related project such as reading "The Giver" and watching "Pleasantville". 	<ul style="list-style-type: none"> Students write a research paper on a curriculum related topic such as Westward Expansion or the immune system.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> Create a simple database using a variety of field types and access the information using a variety of different search strategies. 	<ul style="list-style-type: none"> Use a complex database to manipulate information using the "sort" command. 	<ul style="list-style-type: none"> Create and manipulate a complex database with multiple field types.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> Students create a simple database on the solar system and search for information by speed, distance from the sun, etc. 	<ul style="list-style-type: none"> Students create a complex database about different world religions and sort by time period. 	<ul style="list-style-type: none"> Students create a complex database in a curriculum-related project requiring the sorting and summarizing of the data using more advanced database tools.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Create a spreadsheet and use data to prepare a graph for a curriculum related project. 	<ul style="list-style-type: none"> • Use a spreadsheet to organize and access data. 	<ul style="list-style-type: none"> • Use formulas for basic spreadsheet calculations, such as SUM, AVERAGE, PRODUCT and DIFFERENCE formulas for ranges of cells. • Create an appropriately labeled graph using spreadsheet data.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students collect data and create graphs using a spreadsheet for a curriculum related topic such as the solar system distances from the sun. 	<ul style="list-style-type: none"> • Students create visual representation of patterns (pictograph, bar, line or plot) using spreadsheet. 	<ul style="list-style-type: none"> • Students create a spreadsheet to track stock market transactions using formulas to calculate original cost and profit. • Students create a graph showing the results of their investments.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Create a simple multimedia presentation using text and appropriate graphics. • Use multimedia software applications to organize information into graphs, tables, diagrams and charts with guidance. 	<ul style="list-style-type: none"> • Create a more complex multimedia presentation using text and appropriate graphics. 	<ul style="list-style-type: none"> • Use multimedia software to create links among various pieces of information in a presentation.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students create a presentation about a curriculum-related topic such as organizing information about the five kingdom classification of animals using the diagrams and charts features of PowerPoint. 	<ul style="list-style-type: none"> • Students create a HyperStudio presentation about a curriculum-related topic such as The Early Man and His Technology. 	<ul style="list-style-type: none"> • Students create a web page about a curriculum-related topic such as the Immune System or Energy and Motion.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Students use with guidance a variety of media to collaborate, publish and communicate their learning. 	<ul style="list-style-type: none"> • Students will select with guidance from a variety of media to collaborate, publish and communicate their learning. 	<ul style="list-style-type: none"> • Students will select appropriate media to collaborate, publish and communicate their learning.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students work in a cooperative learning group with guidance using a variety of pre-selected media such as print sources, electronic media, and Internet resources to explore curriculum-related topics such as how rocks and fossils record the earth's history. 	<ul style="list-style-type: none"> • Students work in a cooperative learning group with guidance using a variety of pre-selected media such as print sources, electronic media, and Internet resources to explore curriculum-related topics such as the study of the Civil War. 	<ul style="list-style-type: none"> • Students work in a cooperative learning group selecting from a variety of media such as print sources, electronic media, and Internet resources to explore curriculum-related topics such as the U.S. new industries and travel technology.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Explore appropriate types of electronic reference materials for curriculum projects. • Understand how to navigate and search on the Internet using the features of browsers. • Use content-specific tools, measuring devices, to gather and record data. • Include citations to document resources used. • Discuss the possibility that information gathered from technology sources may not be accurate. 	<ul style="list-style-type: none"> • Identify basic elements of a Web Site (URL, hyperlinks, site map). • Bookmark sites for future reference. • Compare and contrast the results from different search engines. • Cite sources using correct format. • Compare and contrast various technology resources for accuracy, relevance, and appropriateness. 	<ul style="list-style-type: none"> • Identify electronic sources of information and choose appropriate sources to find relevant and current information on a subject. • Cite sources using correct format. • Decide which resources to utilize in creating exhibitions.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students explore curriculum-related topics such as plants and animals through the use of electronic CD-ROM encyclopedias, automated library system and Internet resources with supervision. • Students prepare bibliography of reference sources using teacher-created worksheet. • Students use keywords to search and navigate the Internet using age-appropriate search engines such as Yahoo!igans, Google and Kids Click. • Students experiment with Botanical Gardens to determine the effect of different growth environments. • Students discuss the validity of information gathered from various sources. 	<ul style="list-style-type: none"> • Students identify basic elements of a web site with guidance through visiting several pre-selected sites related to a curriculum topic. • Students will conduct keyword searches in a curriculum-related project. • Students compare and contrast using the results of different search engines. Students bookmark sites for future with teacher guidance. • Students prepare bibliography of reference sources using MLA format. • Students discuss the accuracy, relevance and appropriateness of various technology resources as related to a curriculum topic. 	<ul style="list-style-type: none"> • Students select appropriate electronic CD-ROM encyclopedias, automated library system and Internet. • Students discuss the relevance and accuracy of the information. • Students prepare bibliography of reference sources using MLA format. • Students design presentations selecting from appropriate electronic resources.

GRADE 6	GRADE 7	GRADE 8
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
N/A	Use a combination of technology tools to produce technology-enhanced models and other creative works.	Use a combination of technology tools to produce technology-enhanced models and other creative works.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
	<ul style="list-style-type: none"> • Select and use a variety of technology tools in curriculum exhibitions. 	<ul style="list-style-type: none"> • Use advanced features of computer graphics application to modify a drawing, painting or photograph. • Select and use a variety of technology tools in curriculum exhibitions.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
	<ul style="list-style-type: none"> • Students choose from a variety of technology tools such as scanners, digital cameras, camcorders and computer software to create curriculum related exhibitions such as a PowerPoint presentation on classical Eastern civilizations. 	<ul style="list-style-type: none"> • Students choose from a variety of technology tools such as scanners, digital cameras, camcorders and computer software to create curriculum related exhibitions such as a PowerPoint presentation on Civil War photography. • Students use PhotoShop to modify photographs from the Civil War period to enhance their PowerPoint presentation.

Appendix A: Salem Technology Standards Grades 9 - 12

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.	Use keyboards and other common input and output devices effectively and efficiently.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Demonstrate keyboarding proficiency in technique and posture. • Use a variety of external peripherals and understand how they connect to the computer. 	<ul style="list-style-type: none"> • Connect external peripherals (printers, zip drives, scanner, digital camera, projectors, etc.) to a computer. 	<ul style="list-style-type: none"> • Operate independently subject specific peripheral input devices and other equipment (e.g., digital cameras, camcorders, probes, midi keyboards, graphic tablets, etc.). 	Understand and use subject specific peripheral input devices and other equipment as required through individual course selection.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Student keyboarding skills are evaluated through testing. • Students take keyboarding course based on results of testing. • Teachers model connecting and using available peripherals for use in creating curriculum-related multimedia projects. 	<ul style="list-style-type: none"> • Students connect and use a variety of peripherals for use in creating curriculum-related multimedia projects. 	<ul style="list-style-type: none"> • Students select from a variety of peripherals for use in creating curriculum-related multimedia projects. 	<ul style="list-style-type: none"> • Students select from a variety of peripherals for use in creating curriculum-related multimedia projects.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.	Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.	Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.	Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Back up files. • Format disks for multiple operating systems and save documents to allow translation in multiple operating systems. • Use multiple applications simultaneously and navigate among them. • Demonstrate an understanding of the concepts of file size, application size and memory needed for an operation. 	<ul style="list-style-type: none"> • Create directories and folders on local hard drive, removable media and network. • Demonstrate a basic understanding of how files, printers and applications can be shared on a network. • Demonstrate file management skills (e.g. compress and expand files as needed and download files when appropriate). 	<ul style="list-style-type: none"> • Choose appropriate software preferences or properties. • Ability to transport files from one computer station to another computer station that lacks network support. 	<ul style="list-style-type: none"> • Identify and use methods for transferring, downloading, and converting graphics, sound and video files. • Apply basic troubleshooting strategies for the hardware and software components of the computer system. • Resolve commonly occurring error messages.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Teacher models how to back up files for curriculum projects on network, floppy drives or hard drive. • Teacher models formatting a disk and saving a document for use with another operating system. • Students complete curriculum related projects using multiple applications simultaneously. • Students save their files to the appropriate disk media. 	<ul style="list-style-type: none"> • Students organize their designated documents folder space to easily access their curriculum related projects. • Students access their files in the shared folders on the server. 	<ul style="list-style-type: none"> • Students independently use appropriate software to create graphs, write essays, create databases, prepare multimedia presentations and draw. • Students independently format disk media and save documents to transport files from one computer station to another computer station that lacks network support. 	<ul style="list-style-type: none"> • Teacher models how to download and save graphics, sound and video files for curriculum related projects. • Students use appropriate actions to solve common hardware and software problems.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.	Demonstrate responsible use of technology and work cooperatively with others when using technology.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). 	<ul style="list-style-type: none"> Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). 	<ul style="list-style-type: none"> Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). Identify ways in which technology is widely used in the workplace and in society. 	<ul style="list-style-type: none"> Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> With guidance, students develop a code for responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior. 	<ul style="list-style-type: none"> Teacher reviews code for responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior. 	<ul style="list-style-type: none"> Teacher reviews code for responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior. Develop a position paper that presents a logical argument about the potential impact of legislation or government policies related to information technology. 	<ul style="list-style-type: none"> Teacher reviews code for responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.	Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Demonstrate a clear understanding of the District's Acceptable Use Policy (return signed AUP form). • Site electronic sources correctly using MLA formatting for text and images gathered from electronic sources. • Discuss copyright issues and the specific limitations for text, music and video. 	<ul style="list-style-type: none"> • Demonstrate a clear understanding of the District's Acceptable Use Policy. • Demonstrate and explain copyright laws/issues and model ethical acquisition and use of digital information. 	<ul style="list-style-type: none"> • Demonstrate a clear understanding of the District's Acceptable Use Policy. • Demonstrate an ability to evaluate various media resources, such as web sites, text, sound, images, video and animation for appropriateness, accuracy, and non -bias. 	<ul style="list-style-type: none"> • Demonstrate a clear understanding of the District's Acceptable Use Policy. • Demonstrate an understanding of the consequences regarding copyright violations, including computer hacking, computer piracy, intentional virus setting and invasion of privacy.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students read the District's Acceptable Use Policy and compare it to the policies of other districts. • Students learn correct citing techniques using teacher created materials. • Teacher explains what is meant by copyright and demonstrates where to find copyrights rules that apply to online information. 	<ul style="list-style-type: none"> • Students review the District's Acceptable Use Policy. • Students review correct citing techniques using teacher created materials. • Students describe the steps to take to obtain permission to use copyrighted material. 	<ul style="list-style-type: none"> • Students review the District's Acceptable Use Policy. • Students review correct citing techniques using teacher created materials. • Students compose a Copyright Permission Letter to be used by students in the district. 	<ul style="list-style-type: none"> • Students review the District's Acceptable Use Policy. • Students review correct citing techniques using teacher created materials. • Students create a multimedia project regarding what is meant by copyright violations, including computer hacking, computer piracy, intentional virus setting and invasion of privacy.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. WORD PROCESSING
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> Plan, create and edit documents created in word processing program using readable fonts, alignment, page set up, tabs, and ruler settings. Customize thesaurus and dictionary tools. 	<ul style="list-style-type: none"> Import/export and link data between word-processed document and other applications. Save (retrieve, load, import) documents in the different file formats (RTF, HTML, etc.). 	<ul style="list-style-type: none"> Create and integrate databases, graphics, and spreadsheets into word processing documents to manage information and create reports. 	<ul style="list-style-type: none"> Use advanced word processing skills to create a research paper including footnotes, citations, and style sheets.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> Students record and respond to passages from literature in their electronic journals. Students learn to customize a dictionary and thesaurus to support curriculum-related or language-based vocabulary. 	<ul style="list-style-type: none"> Students prepare word processing documents for inclusion into productivity software, web pages and other publishing tools. Students learn to save documents for transferring from one location or format to another. 	<ul style="list-style-type: none"> Students incorporate graphics and spreadsheets into a project for a curriculum-related topic. 	<ul style="list-style-type: none"> Students use MLA formatting in citing resources for a research paper on a curriculum-related topic.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. DATABASE
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Create an original database, defining field formats and adding new records. • Use features such as sort, filter, and find. 	<ul style="list-style-type: none"> • Apply database features such as mailing labels and mail merges. • Sort and query information in a database. 	<ul style="list-style-type: none"> • Utilize different views of a database (list, data). 	<ul style="list-style-type: none"> • Copy database structure but not data.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students design a database for a curriculum-related topic such as the Periodic Table in Chemistry through which multiple sorts can provide students with relational information about the elements. 	<ul style="list-style-type: none"> • Students create a database of resources related to a curriculum topic requiring outreach to a number of outside contacts. For example, students send letters to other high schools to obtain data about their topic. 	<ul style="list-style-type: none"> • Students create different layouts of data based on the needs of a curriculum-based project or to support the findings in a research paper. 	<ul style="list-style-type: none"> • Students adapt an existing database structure and modify to a new curriculum topic such as taking a database created for a chemistry project and using that structure for a physics or social studies topic.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. SPREADSHEET
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Create an original spreadsheet, entering formulas and functions. • Format columns and rows. • Customize formatting of charts or graphs created in a spreadsheet. 	<ul style="list-style-type: none"> • Select and create graphs and charts appropriate to a curriculum project. 	<ul style="list-style-type: none"> • Import/ export and link data to and from a spreadsheet. 	<ul style="list-style-type: none"> • Use advanced formatting features of a spreadsheet application (e.g. reposition columns and rows, add and name worksheet).
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students design spreadsheets utilizing formulas and functions to enhance learning in curriculum subject areas such as science and mathematics. 	<ul style="list-style-type: none"> • Students choose and create graphs and charts from spreadsheet data to enhance learning in curriculum subject areas such as science, social studies and mathematics. 	<ul style="list-style-type: none"> • Students retrieve data online, such as NASA, for inclusion into a spreadsheet for analysis in relation to a curriculum related project. 	<ul style="list-style-type: none"> • Students customize their spreadsheets with various number formats (scientific notation, percentages, exponents), reposition columns and rows, add and name worksheets.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA	Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum. MULTIMEDIA
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Use components of multimedia software (e.g., text, graphics, sound, video, and animation) to design a project. 	<ul style="list-style-type: none"> • Create and manipulate illustrations with computer graphics software (adjust scale, size, shape, etc.) for a multimedia presentation. 	<ul style="list-style-type: none"> • Import text, sound, video and graphics from a variety of sources into a multimedia presentation. 	<ul style="list-style-type: none"> • Research, plan, create, edit and present a polished multimedia presentation.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students follow a teacher-directed process to plan (Inspiration), to create (HyperStudio/PowerPoint), to edit (paint programs), and present a curriculum-based project. 	<ul style="list-style-type: none"> • Students use graphics manipulation software (AppleWorks Paint, PhotoShop Elements) to edit illustrations to incorporate into a curriculum-based project. 	<ul style="list-style-type: none"> • Students select, edit and/or create sound, video and graphics files to incorporate into a HyperStudio/PowerPoint curriculum-based project. 	<ul style="list-style-type: none"> • Students independently use Inspiration to storyboard a HyperStudio/PowerPoint curriculum-based project that incorporates appropriate sounds, graphics and video.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Gather information and use telecommunications and other media to collaborate, publish and interact with peers, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peers, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peers, experts and other audiences.	Gather information and use telecommunications and other media to collaborate, publish and interact with peers, experts and other audiences.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Participate in a variety of curriculum-based online projects with guidance. • Use technologies such as e-mail, professional interchange networks, and research databases to access and exchange information. 	<ul style="list-style-type: none"> • Participate in a variety of curriculum-based online projects. • Share text, graphics and sound files as attachments in an e-mail message. 	<ul style="list-style-type: none"> • Collaborate with peers, experts and others online regarding a curriculum-based project. • Demonstrate the function of electronic conferencing tools such as electronic bulletin boards, FTP, video conferencing, listservs and newsgroups. 	<ul style="list-style-type: none"> • Collaborate with others via electronic conferencing or discussion groups (bulletin boards, listservs or interactive video). • Present information, ideas and results of work using a variety of communications technologies (e.g. multimedia presentations, web pages, videotapes, desktop published documents).
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students participate in a teacher-selected online project (e.g., Tom Snyder online Decisions, Decisions, Stock Market Game, Journey North, Connected Classroom quests). • Students contact with guidance subject experts (legislators, scientists, authors, etc.). 	<ul style="list-style-type: none"> • Students create an online project based on a curriculum-related topic to share information and data with peers. 	<ul style="list-style-type: none"> • Students use electronic conferencing tools to complete a project based on a curriculum-related topic to share information and data with peers (e.g., students communicate with subject matter experts to broaden and refine information in textbooks). 	<ul style="list-style-type: none"> • Students decide on the type of technology needed in their search for information on a curriculum-based project (e.g., presenting a PowerPoint/HyperStudio presentation, designing a web page, or using a video camcorder).

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.	Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Select appropriate electronic sources with guidance. (e.g. search engines, web sites, online periodicals databases, and online catalogs.) • Introduce effective search strategies to locate and retrieve information using Boolean logic operators. • Use bookmarks that have been organized into folders for further reference. • Demonstrate the ability to identify the source, location and media type. 	<ul style="list-style-type: none"> • Select appropriate electronic sources. (e.g. search engines, web sites, online periodicals databases, and online catalogs.) • Apply and explain appropriate electronic search strategies in the acquisition of information including keywords and Boolean search strategies. • Organize bookmarks into folders for further reference. • Evaluate the acquired information for accuracy, bias, relevance, and appropriateness. 	<ul style="list-style-type: none"> • Collect, organize, analyze and graphically present technology research information using available productivity tools. • Demonstrate the ability to access, operate and manipulate information from secondary storage devices including CD-ROM and online catalogs. • Integrate with correct citations electronic resource results including primary source material in curriculum projects. 	<ul style="list-style-type: none"> • Justify the use of technology research tools to locate, evaluate and collect information from a variety of sources, to process data and to report results. • Resolve information conflicts and validate information through accessing, researching and comparing.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Teacher models the process that a student would use in selecting electronic sources for a curriculum related project. • Teacher models the different results that can be obtained from the use of a variety of different search techniques. • Students use teacher created bookmarks or simple web pages to gather information about a curriculum related project or research paper. • Students create a bibliography/work cited document using a teacher-created template. 	<ul style="list-style-type: none"> • Students select appropriate electronic sources for a curriculum related project. • Students compare and justify the results of different search strategies obtained for a teacher assigned topic. • Students employ search strategies, gather and organize bookmarks for a curriculum related project. • Students view teacher assigned sites, record requested information on a template and discuss the accuracy, relevance, bias and appropriateness of results. 	<ul style="list-style-type: none"> • Students choose productivity tools such as web page, PowerPoint/HyperStudio, and/or word processing software for use in a curriculum-related topic. • Students retrieve and incorporate information from the Internet and CD-ROM devices into a productivity tool for a curriculum project. • Students create a bibliography/work cited document using MLA formatting 	<ul style="list-style-type: none"> • Students determine the validity of electronic resources based on the requirements of a curriculum topic. Question: Does this enhance the finished product? • Students apply strategies for evaluating electronic resources and make informed decisions to resolve information conflicts.

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>	<i>Learning Standard:</i>
Use a combination of technology tools to produce technology-enhanced models and other creative works.	Use a combination of technology tools to produce technology-enhanced models and other creative works.	Use a combination of technology tools to produce technology-enhanced models and other creative works.	Use a combination of technology tools to produce technology-enhanced models and other creative works.
<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>	<i>Teaching Emphasis:</i>
<ul style="list-style-type: none"> • Use technology tools to create and modify solutions to problems. • Organize ideas and plan projects with brainstorming, outlining or concept-mapping software. 	<ul style="list-style-type: none"> • Evaluate when to use technology and determine the appropriate tools and resources. • Use calendars, time management or project management software to assist in conducting an inquiry. 	<ul style="list-style-type: none"> • Demonstrate how specialized technology tools can be used for problem solving, decision-making and creativity. 	<ul style="list-style-type: none"> • Evaluate when to use specialized technology tools for problem solving, decision-making and creativity.
<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>	<i>Teaching Examples:</i>
<ul style="list-style-type: none"> • Students use Inspiration software to demonstrate an understanding of a basic science concept, to organize information for a multimedia project, or to develop comparison diagrams in language arts. 	<ul style="list-style-type: none"> • Students select the appropriate tools (software, cameras, scanners) and resources (print, Internet, Library databases) to complete a multimedia or research project. • Students use calendars or Timeliner software to develop a timeline for the timely completion of a research or multimedia project. 	<ul style="list-style-type: none"> • Students use subject-specific tools such as simulation software, scientific probes, computer-aided design, geographic information systems, graphing calculators, art, and music composition software to make informed decisions to solve real-world problems. 	<ul style="list-style-type: none"> • Students predict trends, perform calculations, and test “what if” scenarios using spreadsheet software or graphing calculators.

Appendix B: Student Technology Performance Indicators

Performance Indicator 1: Use keyboards and other common input and output devices effectively and efficiently.

PreK	<ul style="list-style-type: none"> ➤ Identify the keyboard, mouse, monitor and printer. ➤ Point, click and move mouse.
K	<ul style="list-style-type: none"> ➤ Identify the keyboard, mouse, monitor and printer. ➤ Point, click and move mouse. ➤ Begin to identify specific keys on the keyboard (esp. RETURN, SPACE BAR, ARROW KEYS). ➤ Turn on the computer and printer. ➤ Identify a CD and a CD drive. ➤ Start an application program.
1	<ul style="list-style-type: none"> ➤ Explore keyboard using both hands. ➤ Locate letters and numbers on the keyboard. ➤ Use a CD and CD drive. ➤ Identify the menu bar. ➤ Begin to print documents with support. ➤ Open an application program. ➤ Quit an application program.
2	<ul style="list-style-type: none"> ➤ Use both hands on the keyboard. ➤ Insert a floppy disk. ➤ Save to a floppy disk or hard drive with support. ➤ Send information to a printer. ➤ Teacher-directed access to the Internet.
3	<ul style="list-style-type: none"> ➤ Open/close appropriate software applications and navigate using scroll bars, arrow keys, special keys and mouse. ➤ Create and name folders with support.
4	<ul style="list-style-type: none"> ➤ Begin formal keyboarding skills. ➤ Use a scanner and digital camera with support. ➤ Understand the use of the Chooser to choose a printer. ➤ Locate and save to a designated folder independently.
5	<ul style="list-style-type: none"> ➤ Intermediate keyboarding. ➤ Use a scanned or digital image in a curriculum project with support.
6	<ul style="list-style-type: none"> ➤ Demonstrate efficient keyboarding skills. ➤ Format / initialize disks. ➤ Save a file to the desktop, the hard drive, and floppy disk. ➤ Select a printer and print a document with appropriate page setup and orientation.
7	<ul style="list-style-type: none"> ➤ Operate peripheral equipment (e.g., scanners, digital cameras, camcorders, etc.) ➤ Use editing and formatting features in applications to produce visually effective documents. ➤ Save a file to the desktop, the hard drive, file server and appropriate external media. ➤ Insert media (graphics, video, sound) into documents with support.
8	<ul style="list-style-type: none"> ➤ Insert media (graphics, video, sound) into documents.
9	<ul style="list-style-type: none"> ➤ Demonstrate keyboarding proficiency in technique and posture. ➤ Use a variety of external peripherals and understand how they connect to the computer.
10	<ul style="list-style-type: none"> ➤ Connect external peripherals (printers, zip drives, scanner, digital camera, projectors, etc.) to a computer
11	<ul style="list-style-type: none"> ➤ Operate independently subject specific peripheral input devices and other equipment (e.g., digital cameras, camcorders, probes, midi keyboards, graphic tablets, etc.).
12	<ul style="list-style-type: none"> ➤ Understand and use subject specific peripheral input devices and other equipment as required through individual course selection.

Performance Indicator 2: Demonstrate an understanding of concepts underlying hardware, software and connectivity using a variety of media and technology resources for directed and independent learning activities.

PreK	
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6	<ul style="list-style-type: none"> ➤ Understand the basic differences of computer operating systems. ➤ Understand concept and function of connectivity and networking (via Intranet, Internet World Wide Web). ➤ Identify appropriate operating system icons and symbols.
7	<ul style="list-style-type: none"> ➤ Begin to select appropriate software/ hardware to create a variety of documents.
8	<ul style="list-style-type: none"> ➤ Identify and solve common hardware and software problems (e.g., frozen screen, disk error, printing problems.)
9	<ul style="list-style-type: none"> ➤ Back up files. ➤ Format disks for multiple operating systems and save documents to allow translation in multiple operating systems. ➤ Use multiple applications simultaneously and navigate among them. ➤ Demonstrate an understanding of the concepts of file size, application size and memory needed for an operation.
10	<ul style="list-style-type: none"> ➤ Create directories and folders on local hard drive, removable media and network. ➤ Demonstrate a basic understanding of how files, printers and applications can be shared on a network. ➤ Demonstrate file management skills. (e.g. compress and expand files as needed and download files when appropriate.
11	<ul style="list-style-type: none"> ➤ Choose appropriate software preferences or properties. ➤ Able to transport files from one computer to another computer that lacks network support.
12	<ul style="list-style-type: none"> ➤ Identify and use methods for transferring, downloading, and converting graphics, sound and video files. ➤ Apply basic troubleshooting strategies for the hardware and software components of the computer system. ➤ Resolve commonly occurring error messages.

Performance Indicator 3: Demonstrate responsible use of technology and work cooperatively with others when using technology.

PreK	➤ Take turns when using software.
K	➤ Take turns when using software. ➤ Work with a partner on a project.
1	➤ Respect the work of your peers. ➤ Work with a partner on a project.
2	➤ Respond to another's work in a positive way.
3	➤ Follow classroom rules for responsible use of computers.
4	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
5	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
6	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
7	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
8	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
9	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
10	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).
11	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior). ➤ Identify ways in which technology is widely used in the workplace and in society.
12	➤ Follow classroom rules for responsible and ethical use of computers (responsible behavior around equipment, respect for other people's work, and appropriate collaborative behavior).

Performance Indicator 4: Demonstrate and advocate legal and ethical behavior among peers, family and community regarding the use of technology information.

PreK	
K	
1	
2	<ul style="list-style-type: none"> ➤ Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use.
3	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet (return signed AUP form). ➤ Understand copyright issues. ➤ Discuss damage or unauthorized use of another person's equipment and files.
4	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet. ➤ Discuss importance of citing sources. ➤ Discuss accountability for damage or unauthorized use of another's files or equipment.
5	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet. ➤ Understand how technology can distort information and why it is necessary to evaluate electronic sources of information.
6	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet (return signed AUP form). ➤ Evaluate Internet web sites for educational content. ➤ Demonstrate ethical and legal behavior in copying files, applications and media. ➤ Demonstrate knowledge of email etiquette. ➤ Understand potential problem of computer viruses and exercise caution in opening email attachments from unknown sources. ➤ Demonstrate safe practices for sharing personal information via email and the Internet.
7	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet. ➤ Validate a web site for authenticity (know site origins through: domain name – org, com, etc; know who the author is, or when the site was last updated).
8	<ul style="list-style-type: none"> ➤ Understand the District's Acceptable Use Policy for the Internet. ➤ Demonstrate knowledge of how information can be distorted by electronic media and know how to evaluate information sources in all media.
9	<ul style="list-style-type: none"> ➤ Demonstrate a clear understanding of the District's Acceptable Use Policy (return signed AUP form). ➤ Site electronic sources correctly using MLA formatting for text and images gathered from electronic sources. ➤ Discuss copyright issues and the specific limitations for text, music and video.
10	<ul style="list-style-type: none"> ➤ Demonstrate a clear understanding of the District's Acceptable Use Policy. ➤ Demonstrate and explain copyright laws/issues and model ethical acquisition and use of digital information.
11	<ul style="list-style-type: none"> ➤ Demonstrate a clear understanding of the District's Acceptable Use Policy. ➤ Demonstrate an ability to evaluate various media resources, such as web sites, text, sound, images, video and animation for appropriateness, accuracy, and non - bias.
12	<ul style="list-style-type: none"> ➤ Demonstrate a clear understanding of the District's Acceptable Use Policy. ➤ Demonstrate an understanding of the consequences regarding copyright violations, including computer hacking, computer piracy, intentional virus setting and invasion of privacy.

Performance Indicator 5: Use general-purpose productivity tools and peripherals to support personal productivity, and facilitate directed and independent learning activities throughout the curriculum.

PreK	
K	➤ Use age-appropriate multimedia software to support curriculum.
1	<ul style="list-style-type: none"> ➤ Explore drawing tools in teacher directed activities. ➤ Use age-appropriate multimedia software to support curriculum.
2	<ul style="list-style-type: none"> ➤ Introduce word processing through teacher directed activities. ➤ Use teacher created templates. ➤ Use age-appropriate multimedia software to support curriculum.
3	<ul style="list-style-type: none"> ➤ Develop word processing skills to facilitate the writing process. ➤ Insert images from within the application. ➤ Collect, enter and manipulate data in a teacher-created database. ➤ Use multimedia software to create a simple slide show.
4	<ul style="list-style-type: none"> ➤ Develop word processing formatting skills. ➤ Introduce spell check dictionary. ➤ Create a simple database with support. ➤ Collect, enter and manipulate data in a teacher-created spreadsheet. ➤ Collect and enter information in a teacher-directed slide show. ➤ Use and print from an encyclopedia CD or the Internet for a curriculum related project.
5	<ul style="list-style-type: none"> ➤ Develop beginning desktop publishing skills, such as multiple columns in a newspaper, brochure or book format. ➤ Use thesaurus and dictionary tools. ➤ Create a simple database to use in a curriculum project. ➤ Create a simple spreadsheet related to a curriculum project. ➤ Create a multimedia project using text, graphics and resources from CDs and the Internet with teacher support.
6	<ul style="list-style-type: none"> ➤ Develop intermediate word processing skills, such as copy/paste, bulleting, and outlining. ➤ Create a simple database using a variety of field types and access the information using a variety of different search strategies. ➤ Create a spreadsheet and use data to prepare a graph for a curriculum related project. ➤ Create a simple multimedia presentation using text and appropriate graphics. ➤ Use multimedia software applications to organize information into graphs, tables, diagrams and charts with guidance.
7	<ul style="list-style-type: none"> ➤ Continue intermediate word processing skills, such as formatting tools, and adding graphics to text. ➤ Use a complex database to manipulate information using the “sort” command. ➤ Use a spreadsheet to organize and access data. ➤ Create a more complex multimedia presentation using text and appropriate graphics.
8	<ul style="list-style-type: none"> ➤ Continue intermediate word processing skills, such as headers, footers and page numbers. ➤ Create and manipulate a complex database with multiple field types. ➤ Use formulas for basic spreadsheet calculations, such as SUM, AVERAGE, PRODUCT and DIFFERENCE formulas for ranges of cells. ➤ Create an appropriately labeled graph using spreadsheet data. ➤ Use multimedia software to create links among various pieces of information in a presentation.

<p>9</p>	<ul style="list-style-type: none"> ➤ Plan, create and edit documents created in word processing program using readable fonts, alignment, page set up, tabs, and ruler settings. ➤ Customize thesaurus and dictionary tools. ➤ Create an original database, defining field formats and adding new records. ➤ Use features such as sort, filter, and find. ➤ Create an original spreadsheet, entering formulas and functions. ➤ Format columns and rows. ➤ Customize formatting of charts or graphs created in a spreadsheet. ➤ Use components of multimedia software (e.g., text, graphics, sound, video, and animation) to design a project.
<p>10</p>	<ul style="list-style-type: none"> ➤ Import/export and link data between word-processed document and other applications. ➤ Save (retrieve, load, import) documents in different file formats (RTF, HTML, etc.). ➤ Apply database features such as mailing labels and mail merges. ➤ Sort and query information in a database. ➤ Select and create graphs and charts appropriate to a curriculum project. ➤ Create and manipulate illustrations with computer graphics software (adjust scale, size, shape, etc.) for a multimedia presentation.
<p>11</p>	<ul style="list-style-type: none"> ➤ Create and integrate databases, graphics, and spreadsheets into word processing documents to manage information and create reports. ➤ Utilize different views of a database (list, data). ➤ Import/ export and link data to and from a spreadsheet. ➤ Import text, sound, video and graphics from a variety of sources into a multimedia presentation.
<p>12</p>	<ul style="list-style-type: none"> ➤ Use advanced word processing skills to create a research paper including footnotes, citations, and style sheets. ➤ Copy database structure but not data. ➤ Use advanced formatting features of a spreadsheet application. (e.g. reposition columns and rows, add and name worksheet) ➤ Research, plan, create, edit and present a polished multimedia presentation.

Performance Indicator 6: Gather information and use telecommunications and other media to collaborate, publish and interact with peer, experts and other audiences.

PreK	
K	
1	➤ Exposure to telecommunications through teacher demonstration
2	➤ Introduce the Internet as an information resource through teacher demonstration.
3	➤ Use the Internet to gather information for curriculum projects using teacher-selected sites.
4	➤ Participate in a basic online project.
5	➤ Participate in a curriculum related online project.
6	➤ Students use with guidance a variety of media to collaborate, publish and communicate their learning.
7	➤ Students will select with guidance from a variety of media to collaborate, publish and communicate their learning
8	➤ Students will select appropriate media to collaborate, publish and communicate their learning.
9	<ul style="list-style-type: none"> ➤ Participate in a variety of curriculum-based online projects with guidance. ➤ Use technologies such as e-mail, professional interchange networks, and research databases to access and exchange information.
10	<ul style="list-style-type: none"> ➤ Participate in a variety of curriculum-based online projects. ➤ Share text, graphics and sound files as attachments in an e-mail message.
11	<ul style="list-style-type: none"> ➤ Collaborate with peers, experts and others online regarding a curriculum-based project. ➤ Demonstrate the function of electronic conferencing tools such as electronic bulletin boards, FTP, video conferencing, listservs and newsgroups.
12	<ul style="list-style-type: none"> ➤ Collaborate with others via electronic conferencing or discussion groups (bulletin boards, listservs or interactive video). ➤ Present information, ideas and results of work using a variety of communications technologies (e.g. multimedia presentations, web pages, videotapes, desktop published documents).

Performance Indicator 7: Select and apply technology tools for research, information analysis, problem solving and decision making in content learning.

PreK	
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3	➤ Gather information from a variety of sources, including teacher-selected web sites, CD-ROM encyclopedias, etc.
4	➤ Use an Internet search engine.
5	➤ Evaluate and interpret information gathered from a search engine.
6	<ul style="list-style-type: none"> ➤ Explore appropriate types of electronic reference materials for curriculum projects. ➤ Understand how to navigate and search on the Internet using the features of browsers. ➤ Use content specific tools, measuring devices, to gather and record data. ➤ Include citations to document resources used. ➤ Discuss the possibility that information gathered from technology sources may not be accurate.
7	<ul style="list-style-type: none"> ➤ Identify basic elements of a Web Site (URL, hyperlinks, site map). ➤ Bookmark sites for future reference. ➤ Compare and contrast the results from different search engines. ➤ Cite sources using correct format. ➤ Compare and contrast various technology resources for accuracy, relevance, and appropriateness
8	<ul style="list-style-type: none"> ➤ Identify electronic sources of information and choose appropriate sources to find relevant and current information on a subject. ➤ Cite sources using correct format. ➤ Decide which resources to utilize in creating exhibitions.
9	<ul style="list-style-type: none"> ➤ Select appropriate electronic sources with guidance. (e.g. web sites, online periodicals databases, and online catalogs.) ➤ Select and use search engines with guidance. Understand the differences between search engines. ➤ Introduce effective search strategies to locate and retrieve information using Boolean logic operators. ➤ Use bookmarks that have been organized into folders for further reference. ➤ Demonstrate the ability to identify the source, location and media type
10	<ul style="list-style-type: none"> ➤ Select appropriate electronic sources. (e.g. web sites, online periodicals databases, and online catalogs.) ➤ Select and use search engines independently. ➤ Apply and explain appropriate electronic search strategies in the acquisition of information including keywords and Boolean search strategies. ➤ Organize bookmarks into folders for further reference. ➤ Evaluate the acquired information for accuracy, relevance, appropriateness and bias.
11	<ul style="list-style-type: none"> ➤ Collect, organize, analyze and graphically present technology research information using available productivity tools. ➤ Demonstrate the ability to access, operate and manipulate information from secondary storage devices including CD-ROM and online catalogs. ➤ Integrate with correct citations electronic resource results including primary source material in curriculum projects.
12	<ul style="list-style-type: none"> ➤ Justify the use of technology research tools to locate, evaluate and collect information from a variety of sources, to process data and to report results. ➤ Resolve information conflicts and validate information through accessing, researching and comparing.

Performance Indicator 8: Use a combination of technology tools to produce technology-enhanced models and other creative works.

PreK	
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7	➤ Select and use a variety of technology tools in curriculum exhibitions.
8	<ul style="list-style-type: none"> ➤ Use advanced features of computer graphics application to modify a drawing, painting or photograph. ➤ Select and use a variety of technology tools in curriculum exhibitions.
9	<ul style="list-style-type: none"> ➤ Use technology tools to create and modify solutions to problems. ➤ Organize ideas and plan projects with brainstorming, outlining or concept-mapping software.
10	<ul style="list-style-type: none"> ➤ Evaluate when to use technology and determine the appropriate tools and resources. ➤ Use calendars, time management or project management software to assist in conducting an inquiry.
11	➤ Demonstrate how specialized technology tools can be used for problem-solving, decision-making and creativity.
12	➤ Evaluate when to use specialized technology tools for problem solving, decision-making and creativity.

***Appendix C: Members of the Revision Committee for
the 2007 – 2012 Salem Public Schools Technology Plan***

Salem Public Schools is deeply indebted to the following individuals (listed alphabetically) for their commitment of time and expertise in developing this update of the Salem Public Schools Technology Plan for 2007 – 2012.

Michael Allen	School Committee member, Salem, Massachusetts
Loretta Cannistraci	Director of Information Systems, Salem Public Schools
Roberta Gansenberg	District Computer Technician, Salem Public Schools
Dave Gauthier	Program Director, Salem Access TV, Salem, Massachusetts
Ana Maria Hanton	Principal, Nathaniel Bowditch School, Salem, Massachusetts
Jim Herman	District Data Analyst, Salem Public Schools
Tom LaValley	Principal, Bates Elementary School, Salem, Massachusetts
Patti Morsilio	Parent, PTO Treasurer, Nathaniel Bowditch School, Salem, Massachusetts
Stephen Silbert	Technology Integration Specialist, Horace Mann and Saltonstall Elementary Schools, Salem, Massachusetts