

NAUSET PUBLIC SCHOOLS TECHNOLOGY PLAN 2007-2010

**Any sufficiently advanced technology is
indistinguishable from magic.
~Arthur C. Clarke**

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EXECUTIVE SUMMARY

The Nauset Public Schools are a Superintendency Union-Regional district including the towns of Brewster, Eastham, Orleans, and Wellfleet. Each town operates an autonomous K-5 school district. The Region serves grade 6-12 and coordinates preschool services for the four communities. This organization presents unusual circumstances for the development of any coordinated effort, since local funding for each district is distinct, and bears no necessary relationship to the others' funding.

The goals of the previous Nauset Public Schools technology plans (October 2001 and September 2004) were set at the district level, and every effort has been made to meet those goals within fiscal constraints. In February of 2007, the Massachusetts Department of Education developed a set of realistic benchmark standards (*Local Technology Plan Benchmark Standards for the Years 2007-2010 and the StaR Chart*) to encourage every district in Massachusetts to provide an appropriate local infrastructure for information technology by the year 2010. In May 2001, the Department of Educational also released *The PreK-12 Instructional Technology Recommended Standards*, which clearly defines what PreK-12 students should know and be able to do in order to use technology for learning. These guidelines drive the infusion of technology to support teaching and learning, and will be re-issued in late 2007. Also, as outlined in the *Nauset Public Schools District Goals 2004-1009*, technology will be used to plan and design effective learning experiences and educators will use a NETS*T standard as a personal professional goal to demonstrate their effective use of technology to support teaching, learning, and instructional management.

These documents are the basis for this updated technology plan. If technology is to influence teaching and learning and help prepare students for the world of work, it is vital students are comfortable and proficient with multiple technology tools. In order for this to occur, there must be networks, maintenance, hardware, and software plans in place.

The goals of the plan are:

1. Continue the computer upgrades and the 6-year replacement cycle to reach and maintain the Commonwealth's recommended benchmark of a 5:1 student-to-computer ratio of up-to-date, multimedia computers and other technologies.
2. Provide appropriate levels of technical support and maintenance, as recommended by the Department of Education.
3. Provide Curriculum Integration Specialist support at all schools to work with teachers and students to integrate technology throughout the curriculum.
4. Provide on-going professional development for teachers and staff to provide them with the tools and strategies necessary to incorporate the *PreK-12 Instructional Technology Recommended Standards* throughout the curriculum and to attain their personal professional technology goals.
5. At an administrative level, coordinate the central location and access to databases to facilitate data entry, communication among the schools and to the home, cooperative and collaborative functions, and reporting of statistics as required by state and local agencies.

TECHNOLOGY VISION AND MISSION STATEMENT

VISION

Technology centers around student learning and instructional improvement connected to standards.

Professional development in technology is organized around the use of technology to manage information, to communicate, and to advance teaching and learning.

Teachers	Students
Demonstrate a sound understanding of technology operations and concepts.	Demonstrate proficiency in the use of computers and applications as well as an understanding of the concepts underlying hardware, software, and connectivity.
Plan and design effective learning environments and experiences supported by technology.	Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.
Implement curriculum plans that include methods and strategies for applying technology to maximize student learning.	Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences.
Apply technology to facilitate a variety of effective assessment and evaluation strategies.	
Use technology to enhance their productivity and professional practice.	
Understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply the understanding in practice.	<ul style="list-style-type: none"> • <i>Re-printed and adapted courtesy of <u>Threshold</u> magazine, Fall 2003.</i> • <i>NETS*T and NETS*S courtesy of ISTE.</i>

In addition, centralization of data, both administrative and instructional, and access to a common folder from each school in the Nauset Public Schools will facilitate communication and collaboration at the administrative and staff levels.

This plan is intended to provide a guide to the achievement of this mission within the years encompassed by the Plan, to ensure the technology prescribed by this Plan is used effectively, equitably, and in direct pursuit of the goals of the *Local Technology Plan Guidelines 2007-2010* as outlined by the Massachusetts Department of Education and the *Nauset Public Schools District Goals 2004-2009*.

OVERVIEW OF TECHNOLOGY PLANNING PROCESS

The Nauset Public Schools Technology Plan was created by the Administrator for Technology for the Nauset Public Schools with input (from 2004-2007) and review from administrators, classroom teachers, instructional technology specialists, and a representative sample of staff and students. The Superintendent approved the document in February 2007 and it will be presented to the Joint School Committees for review in the Fall of 2007.

SCHOOL TECHNOLOGY AND READINESS CHART 2006			
The current status and future plan are presented in sections outlined on the <i>STaR Chart</i> (http://www.doe.mass.edu/boe/sac/edtech/star.html) <i>Proficient Tech</i> line.			
KEY AREA: TEACHING AND LEARNING			
Focus Area	Proficient Tech	2007 Current	2010 Goal
Impact of Technology on Teacher Role	Mostly teacher facilitated learning. Students use technology for cooperative projects in their own classroom	Many teachers are utilizing technology via whole-group instruction and there is significant use of open labs and mobile computer carts.	The goal is to have both a small pod of computers in each classroom to facilitate group activities and significant numbers of mobile computer labs and open labs.
Patterns of Teacher Use	85% of teachers use technology for research, lesson planning, multimedia and graphical presentations and simulations, and share technology uses with colleagues.	The teachers have met this benchmark.	The goal is to have 100% of teachers attain this benchmark and, in addition, include higher-order skills for students in the designed units.
Design of Instructional Settings	Lab, libraries, all classrooms, and portable technology (e.g. wireless laptops or handheld electronic devices); flexible scheduling.	All schools currently have computer labs, open computer times, and 70% have mobile computer labs	100% of the schools will have an open computer lab and sufficient mobile computer labs to meet the needs of instruction.
Curriculum Areas	Integrated into most Framework curricular areas and activities at all grade levels.	Technology in integrated into many curriculum areas at all grade levels and, is included as teachers develop and implement new ETUDs	There will be a meaningful technology component in each ETUD.
Patterns of Student Use	85% of students show proficiency in all Massachusetts Technology Standards.	We currently measure only grade 4 students, and all have attained this benchmark.	The goal is to meet this benchmark for both grade 4 and grade 8 students.

<p>Content of Training</p>	<p>Training directly ties technology to its use in content areas and how to effectively manage it in the classroom.</p>	<p>The training targets administrative uses and curriculum infusions strategies.</p>	<p>Training will directly tie technology to its use in content areas and how to effectively management in the classroom and/or lab setting.</p>
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KEY AREA: EDUCATOR PREPARATION AND DEVELOPMENT			
Focus Area	Proficient Tech	2007 Current	2010 Goal
Capabilities of Educators	60% meet ISTE and/or local district teacher technology competencies and implement them into the school environment.	TSAT data (6/06) Early: 47% Developing: 22% Proficient : 9% Advanced: 23%	TSAT Goals Early: 0% Developing: 20% Proficient : 50% Advanced: 30%
Leadership and Capabilities of Building Principals and District Administrators	Recognizes and identifies exemplary use of technology in instruction. Uses technology skills in daily work such as research and communication and models appropriately with staff. Provides constructive feedback to teachers on their technology use.	Administrators in the district are comfortable with this benchmark and understand how technology can be used to support teaching and learning. In addition, they are advocates in the community for the infusion of technology in instruction.	Administrators will ensure a school-wide culture that expects all teachers to use technology to support teaching and learning in a meaningful way exists.
Models of Professional Development	Coaching, modeling best practices, district-based mentoring. Involvement in a development / improvement process. Study groups.	Professional learning communities are in place that specifically study technology as well as those that include a technology component.	District-wide technology day with successful local practices showcased. Online collaborative sharing of best-practices.
Levels of Understanding	Most at appropriation stage (technology is integrated, used for its unique capabilities).	Most are at the adaptation stage (technology is used to enrich curriculum.)	Most at appropriation stage (technology is infused, used for its unique capabilities).

<p>Universal Access: Integration of Universal Design and Assistive Technology</p>	<p>Awareness of universal design and assistive technologies (hardware/software) by special educators & most general educators; universal design strategies or assistive technology used to promote access to the general curriculum demonstrated across all grade levels; staff are designated to provide AT assessment, procurement, support (training) and maintenance</p>	<p>Awareness of universal design and assistive technologies (hardware/software) by special educators</p>	<p>Universal design strategies or assistive technology are used to promote access to the general curriculum demonstrated across all grade levels by special education staff who also are designated to provide AT assessment and support (training)</p>
<p>Vision and Planning</p>	<p>The technology plan aligns with Massachusetts Technology Plan; integrated into district plan; used for internal planning, budgeting, applying for external funding and discounts. Teachers / administrators have a vision for technology use in support of student learning, teacher professionalism, and data management.</p>	<p>The technology plan aligns with Massachusetts Technology Plan; integrated into district plan; used for internal planning, budgeting, applying for external funding and discounts. Teachers / administrators have a vision for technology use in support of student learning, teacher professionalism, and data management.</p>	<p>The technology plan and vision are focused on improving the success of all students based on needs, research, proven teaching and learning principles; Technology plan is collaboratively developed, guiding policy and practice; updated at least bi- annually.</p>

KEY AREA: ADMINISTRATION AND SUPPORT SERVICES			
Focus Area	Proficient Tech	2007 Current	2010 Goal
Technical Support (hardware, operating system, network)	At least one technical staff per 200 computers. Same-day in-classroom technical support available. Problems infrequently cause major disruptions to curriculum delivery using technology. Network administrator.	Technical support work order system; response time greater than 24 hours. Problems cause major disruptions to curriculum delivery using technology. .3 technical support person for 1100 computers	One technical support staff per 1100 computers; two-day in-classroom technical support available. Contracted network administrative services.
Technology Integration Specialist	District level Technology Director. Dedicated instructional technology specialist - one half person per 30-60 staff. Dedicated staff at district level for data management and assessment.	District level Technology Director; Local instructional technology support is inconsistent.	District level Technology Director. One-half instructional technology specialist per 60-120 staff. (1 full-time per K-12)
Budget Levels	Budget for purchases, professional development, adequate staffing support, and ongoing costs. Other state, federal, and local programs directed to support technology funding. Business partnerships, donations, and other local funding designated for technology.	Benchmark met in the area of purchases and professional development.	Expand benchmark standard to provide adequate staffing support.

<p>Budget Allocated for Technology (Total Cost of Ownership)</p>		<p>Numbers from regular budget \$ per student including technology teachers, contracted support, and technology administrator (based on 05-06 actual expenditures)</p> <p>BES: \$202 EES: \$250 NPS: \$396 OES: \$385 WES: \$350</p>	<p>Increase to sufficient funds to fund at least a ½ time technology integration specialist per 60-120 teachers (1 full-time K-12) (with the exception of Orleans who already has someone in this position.)</p>
<p>Universal Design and Accessible Technology Considerations (e.g. Section 508)</p>	<p>Considerations for universal design and accessible technologies are established in areas of high student use (e.g., libraries, computer labs), some classrooms and administrative offices; routine implementation of procurement policies for information and instructional technologies that ensure usability, equivalent access, and interoperability.</p>	<p>Both local technology experts and contracted services are consulted when investigating accessible technologies.</p> <p>Considerations for universal design and accessible technologies are mostly limited to the Individual Education Program (IEP) process for students with disabilities and established in areas of high student use.</p>	<p>In conjunction with Student Services, procurement policies for information and instructional technologies that ensure usability, equivalent access, and interoperability will be developed.</p>

<p>Students per Instructional Computer</p>	<p>Less than 5 students per Type A and B computer; replacement cycle established for 6 years or less; one computer per teacher - possibly a laptop for homework. Most students have access to handheld electronics (e.g., PDA's, graphing calculators, Alpha Smarts). Maintains a list of places students can use technology outside of school</p>	<p>Actual June 06 BES: 3.25 EES: 2.20 NPS: 5.81 OES: 2.91 WES: 2.09 Currently, most computers are in the 3 to 4 year old range</p>	<p>With adherence to the continual 6-year replacement cycle of computers, this benchmark should continue on this path, unless the A/B computer standard is upped.</p>
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KEY AREA: INFRASTRUCTURE FOR TECHNOLOGY			
Focus Area	Proficient Tech	2007 Current	2010 Goal
Internet Access Connectivity/ Speed	Direct connectivity to the Internet available in all rooms in all schools. Adequate bandwidth to each classroom over the LAN (10/100mb) to avoid most delays. Easy access for students and teachers including some wireless.	Currently this benchmark is met.	Through both regular budget and capital monies, update the infrastructure and hardware to attain network speeds of at least 1GB to the desktop.
E-Learning Environments	Development of connections for improved access to web-based and/or interactive IP-based video learning on the local, state, regional, national, and international level (school to school, district to district, school/district to state, state to state, country to country). Applications to include courses, cultural projects, virtual field trips, etc.	Currently, the local bandwidth is mostly sufficient for access, with some limitations on streaming media.	Have two Internet connections at both the middle school and the high school to allow for segmenting the network to allow for both high-need bandwidth and access to Internet2.

<p>LAN/WAN</p>	<p>All rooms connected to Internet via LAN/WAN with significant wireless connectivity at each school with sufficient bandwidth for effective student access. Minimum 10/100 mb Cat 5 switched network. Servers for providing secure storage, backups, schedule, e-mail, web. Students, teachers and parents have easy access to educational resources from home and school (e.g., web portal).</p>	<p>Currently, except in one area of the middle school with Cat4 in the walls, this benchmark has been met.</p> <p>Servers are present in most schools, although dependence upon Web-based storage (MassONE) is increasing. The student information system (x2) is being piloted by middle school parents and teachers.</p>	<p>Ensure that all areas of all building can at least attain 100MB bandwidth, with 1 GB preferred.</p> <p>All schools will utilize the x2 system, even for standards-based assessment recording, to allow access to information for parents.</p>
<p>Other Technologies</p>	<p>Dedicated and assigned use of common technologies such as telephone, TVs and VCRs and DVDs. Programmable calculators assigned to each student as needed. In each school there is shared use of specialized technologies, digital cameras, scanners, handheld electronic devices, and computer/video projectors.</p>	<p>Standard met.</p>	<p>Fully equipped classrooms with computer/video projectors and technology that will enhance student instruction readily available as above as well as use of new and emerging technologies.</p>
<p>Security</p>	<p>Adequate server and availability protection added to above for expanded capabilities and to ensure dependable access.</p>	<p>Standard met.</p>	<p>Usage authentication added for mobile computer and home/external access requirements.</p>

TIMELINE

January - June 2007

- Confer with constituencies for additions/deletions to technology plan
- Present revised technology plan to superintendent for review and approval
- Roll-out parent/student portal component to x2 student information system
- Conduct mandatory technology assessment to obtain an overview of staff technology skills, needs, and goals
- Install and utilize Web-based home-school phone communication system

2007-2008 School year

- Present updated technology plan to the Joint School Committee fall meeting
- Advise principals on budgetary items for 2008-2009 school year.
- Roll-out SPED and EPIMS components of the x2 Student Information System
- Increase infrastructure throughput at Nauset Regional High School (capital) \$10,000
- Investigate purchase of OpenCape bandwidth to allow for additional Internet access
- Purchase of replacement computers as outline in benchmark overviews (@\$1700 each with Office, AV, moving of data, and installation)
 - Eddy: 17 computers (\$28,900)
 - SBES: 20 computers (\$34,000)
 - EES: 18 computers (\$30,600)
 - OES: 15 computers (\$25,500)
 - NRMS: 42 computers (\$71,400)
 - WES: 13 computers (\$22,100)
- Purchase of two computer labs (46 replacement computers) for the high school (capital monies) \$100,000

2008-2009 School year

- Implement centralized access to district administrative data.
- Purchase of computers as outlined in benchmark overviews.
 - Eddy: 17 computers (\$28,900)
 - SBES: 20 computers (\$34,000)
 - EES: 18 computers (\$30,600)
 - OES: 15 computers (\$25,500)
 - NRHS: 30 computers (none of the leased laptops) \$51,000
 - NRMS: 14 computers (\$23,800)
 - WES: 13 computers (\$22,100)
- Hiring of full-time technology maintenance specialist (\$40,000) + Benefits (\$8000)= \$48,000
- Produce a technology professional development plan to work in conjunction with ongoing professional development for teachers and staff
- Purchase of file servers for the high school (capital) \$10,000
- Replacement of file server and 28 computers at NRMS (capital) \$50,000
- Include \$10,000 in budget for network maintenance K-12 (150 hours per year)

2009-2010 School year

- Purchase of computers as outlined in benchmark overviews.
 - Eddy: 17 computers (\$28,900)
 - SBES: 20 computers (\$34,000)
 - EES: 18 computers (\$30,600)
 - OES: 15 computers (\$25,500)
 - NRHS: 24 computers (none of the leased laptops) \$40,800
 - NRMS: 12 computers (\$20,400)
 - WES: 13 computers (\$22,100)
- Full-time technology maintenance specialist (\$41,200) + Benefits (\$8000)= \$49,200
- Hiring of full-time curriculum integration specialist K-12 (\$40,000) + \$8000 benefits
- Replacement of 6 computers at the high school (capital) \$10,000
- Replacement of 30 computers at the middle school (capital) \$50,000
- Investigate infrastructure changes to allow for increased bandwidth at elementary schools
- Include \$10,000 in budget for network maintenance K-12 (150 hours per year)