

Technology Plan 2015-2018



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Executive Summary

Introduction

Technology is a vital part of daily life impacting businesses, commerce, communication and entertainment. In order to prepare our students to be contributing members of society, we must embrace digital learning experiences in all classrooms within our schools. Students must be engaged and empowered to use technology creatively, proficiently, and responsibly in order to develop the skills necessary for their futures.

This technology plan was developed over the course of the 2014-2015 school year after evaluating all aspects of the technology department: infrastructure, instructional technology resources, staffing, curriculum, professional development and budgeting. The plan utilizes the Massachusetts Department of Elementary and Secondary Education technology planning benchmarks as an organizational framework.

Norton Public Schools Core Values

We believe in:

- Creating a safe, secure learning environment where respect, honesty, and appreciation of individual differences are fostered.
- Cultivating and maintaining partnerships with students, parents, staff and the community.
- Maintaining rigorous standards and high expectations for all students as keys to academic excellence and life-long learning.
- Motivating students to become independent learners who take responsibility for their own learning.
- Offering a balanced curriculum aligned with quality instruction
- Inspiring and equipping all students to discover and develop their talents in order to express their unique potential as leaders, critical thinkers, and collaborators.
- Instilling a sense of pride in our schools and community.

Mission Statement

Guided by our Core Values, the Norton Public Schools, in active partnership with parents and the community, will provide each student with a quality education, one which fosters personal development and intellectual growth and prepares each to contribute and succeed as a productive and responsible global citizen in the 21st century.

Vision Statement

The Norton Public Schools, in collaboration with the community, inspires excellence in teaching and learning in order to promote individual talents and maximize each student's potential.

Benchmark 1: Commitment to a Clear Vision and Implementation Strategies

Technology Vision

The Norton Public Schools recognize the essential role technology has within our global society. We strive to provide anytime, anywhere access to current technology tools and resources that enhance the educational experiences of all learners. We embrace the use of technology to support teaching and learning through creativity, collaboration, communication, critical-thinking and responsibility within our school community and beyond.

Our school system aspires to provide opportunities for all students and staff to seamlessly use technology in all areas of the curriculum. A key element includes the availability of up-to-date, reliable hardware and software tools in all district classrooms. This technology plan begins to address the acquisition and maintenance of resources and the expansion of our technology program to maximize digital teaching and learning opportunities.

The determination of needs is founded in the belief that technology is a tool used to enhance both learning and teaching. As such, support and guidance must be provided to students and staff to use technology in engaging, innovative and meaningful ways. This belief acknowledges the demand for consistent, individualized support and training. Our technological professional development plan supports relevant hardware and software implementation, but, most importantly, effective integration of these technologies in our classrooms.

Expanded methods of communication with the community and with the world will provide our academic environment with a greater world-view, and increased emphasis on cooperation and collaboration, and an enhancement of the educational environment for our students and our staff. The district has a technology committee that meets monthly to discuss and plan district-wide technology initiatives.

Technology Committee Members

Dr. Joseph Baeta, Superintendent of Schools
 Karen Winsper, Director of Instructional Technology, Committee Chair
 Heather Albritton, Business & Technology Department Chairperson, Norton High School
 Tom Arieta, Music Teacher, LG Nourse and JC Solmonese Elementary Schools
 Lori Andrade, Technology Teacher, JC Solmonese Elementary School
 Jenifer Carline, 5th Grade Teacher, Henri A. Yelle Elementary
 Susan Cashton, Technology Teacher, LG Nourse and Henri A. Yelle Elementary Schools
 Paul Driscoll, Network Administrator
 Christopher Gale, History Teacher, Norton High School
 Michael Kramer, Technology Education Teacher, Norton Middle School
 Jennifer Skowronek, Special Education Teacher, Norton Middle School
 Aaron Sumner, Business & Technology Teacher, Norton High School
 Jennifer Young, Library Media Specialist, Norton High School
 Nick Zelinski, Network Technician

Needs Assessment

Through the use of surveys, the district technology committee gathers information to evaluate and analyze the effectiveness of technology use district-wide. Data is also used to plan projects and align goals with available funds. A recommendation of this plan is to develop student, staff and community surveys to be distributed twice a year, at the beginning and end of each school year, to more accurately gauge progress.

Budget

Over the past five years, the Norton Public Schools technology department saw little to no funding due to budget constraints. Funds were not available to upgrade hardware or software and the Technology Director's position was eliminated. District technology was outdated and between five and ten years old. This is not the direction our community wished to continue which is evidenced by a capital improvement project that allowed for the installation of a wireless network in all of our school buildings PreK-8. The same was completed as part of the Norton High School building project. As the economy has begun to improve, the school department was able to reinstate the Director of Instructional Technology position in the summer of 2014 and successfully passed two articles at fall town meeting to provide laptop computers for instructional staff PreK-8, three mobile Chromebook carts for use at the Norton Middle School and an upgrade to our Student Information System.

The Norton Public Schools is moving forward with developing a budget that treats technology as a utility that must be funded annually. The Superintendent of Schools, School Business Manager, and Director of Instructional Technology work together to develop an initial technology budget that encompasses staffing, hardware, software, professional development, support and contracted services district-wide. It is then presented to the Norton School Committee for discussion and approval as part of the larger school department budget.

The district leverages federal, state and local resources to expand and improve current practice. Grants are also considered as an alternative means of funding specific technology purchases. Norton Embracing Educational Development, Inc. (NEED) and Norton Media Center may provide funding to teachers and staff members who apply for technology grants.

There is much ground to be made up in the area of technology within the Norton Public Schools but it can be done through supporting overarching goals that focus on our students and teachers. Specific technology initiatives outlined in the Strategic Plan are priorities for the technology department budget for the duration of this technology plan. The school department will annually assess progress towards achieving the goals and adjust as necessary.

Strategic Plan Technology Initiatives with Budget Implications

The technology department aligns itself with the mission and vision of the Norton Public Schools believing technology provides an additional avenue to demonstrate our Core Values. Technology is an important component of the 2015-2018 Strategic Plan with the following initiatives outlined as key steps to improve our schools and the department in general.

Initiative	Potential Budget Implications	Timeline
Implement Google Apps for Education (GAFE) for students and staff PreK-12.	Providing professional development to staff. Service is free to school districts.	2015-2016
Transition to Gmail for email service for staff. Provide internal email accounts for students in grades 6-12.	Providing professional development to staff. Service is free to school districts.	2015-2016
Pilot a Bring Your Own Device (BYOD) program for students in grades 6-12.	Purchase of supplementary hardware to provide access for students who do not own a device. Professional development for staff.	2015-2016
Implement a best-practice instructional technology-coaching model to support staff in integrating technology throughout the curriculum PreK-12.	Hiring instructional technology coaches and/or providing stipends to instructional staff taking on role of Teacher Technology Liaisons (TTLs). Providing job-embedded professional development for teachers.	Ongoing
Incorporate technology standards and skill assessments into classroom instruction to develop targeted skills.	Identify and secure software and hardware needs and provide appropriate professional development for staff.	2016-2017
Expand online learning opportunities across grade levels.	Identify and secure online resources to provide grade-level appropriate opportunities for all students.	2017-2018
Strengthen district-wide programming in STEAM Education.	Additional staff training in best practices, hardware & software purchases to align with curriculum needs.	Ongoing
Update middle school technology education lab with state of the art equipment to promote innovation, creativity, and collaboration.	Identify curriculum, software and hardware that align with new standards and provide professional development for staff.	2016-2017
Provide on-going professional development for staff to support the regular use of relevant technology in instruction.	Hiring instructional technology coaches and/or providing stipends to instructional staff taking on role of Teacher Technology Liaisons (TTLs). Providing job-embedded professional development for teachers.	Ongoing
Update the district website regularly.	Identify best and most cost efficient alternative for district website and provide training to staff on implementation.	2016-2017

Initiative	Potential Budget Implications	Timeline
Maintain and develop building technology infrastructure that is adaptable to new curriculum and instruction and the evolving needs of individuals and learning communities.	Contract outside vendors to conduct site surveys of buildings as needed. Fund network improvements through regular technology budget.	Ongoing
Create a flexible, realistically updated inventory of equipment and digital technology tools, utilizing industry standards for staffing, training and maintenance aimed at preparing students for global careers.	Develop a refresh cycle for classroom and administrative equipment and budget based on priorities.	Ongoing
Provide laptop computers for all teachers PreK-12.	Replacement of NHS staff laptops Replacement of NMS staff laptops Replacement of Elementary staff laptops	2017-2018 2018-2019 2019-2020
Update computer operating systems district-wide to current version.	Annual cost must be budgeted.	Ongoing
In collaboration with the town, purchase mobile carts of technology for student use.	Purchase or lease mobile carts of technology hardware for the elementary level followed by NHS and NMS.	Ongoing
Increase funding for technology resources that support teaching and learning through the general operating budget.	Fund technology as utility and develop appropriate per pupil expenditure as outlined by the Massachusetts Department of Elementary and Secondary Education guidelines.	Ongoing

Benchmark 2: Technology Integration and Literacy

Technology Integration-Outside Teaching Time

The Norton Public Schools are committed to support faculty and staff in using technology daily for lesson planning and administrative classroom tasks while also encouraging staff to explore ways technology can enhance communication with families and collaboration with colleagues. We are confident that we will achieve 100% of staff using technology every day now that all teaching staff PreK-12 has a district issued laptop computer.

Technology Integration for Teaching and Learning

The District had been without a technology leader for almost five years. During that time, technology integration was inconsistently achieved throughout the District. As access to updated technology increases, we believe our staff will embrace using technology to support teaching and

learning. We are working towards achieving at least 90% of teachers using technology every day with students to support curriculum outcomes.

The International Society for Technology in Education (ISTE) developed standards for teachers to help define the skills needed to teach in a modern classroom. Norton Public Schools educational technology professional development will be based on the ISTE Standards that are used for evaluating the skills and knowledge needed to learn, teach, work and live in a digitally connected and global society. The descriptions of the Standards for Teachers can be found online at https://www.iste.org/docs/pdfs/20-14_ISTE_Standards-T_PDF.pdf

The five standards for teachers include being able to:

- Facilitate and inspire student learning and creativity
- Design and develop digital age learning experiences and assessments
- Model digital age work and learning
- Promote and model digital citizenship and responsibility
- Engage in professional growth and leadership

The Director of Instructional Technology in collaboration with the Director of Curriculum and Instruction will work to design and deliver professional development opportunities for staff in the standards outlined by ISTE.

Technology Literacy

It is imperative that we prepare our students to use technology in varied yet authentic ways that promote critical thinking and evaluation, collaboration, creativity and responsible use. We aim to provide digital learning experiences that are directly embedded within the core curriculum. As the state of Massachusetts moves forward with next generation tests as a means to assess student achievement, the Norton Public Schools is cognizant of the skills needed for our students to be prepared to take digital assessments. Areas of focus include general navigation, universal access features, general answering and math tools. A complete list can be found in Appendix A or online at <http://www.doe.mass.edu/parcc/CommTool/TechSkillsOnlineAssessments.xlsx>

The Norton Public Schools instructional technology curriculum was revised in 2012 and is based on the Massachusetts Technology Literacy Standards and Expectations (2008) that are in the process of being updated. The new standards are expected in the fall of 2015, which is when the technology department will re-evaluate and align our program with the new expectations. Until then, it is our goal to have students utilize technology within the regular classroom environment and work towards the minimum 90% proficiency as directed by the Massachusetts Department of Elementary and Secondary Education (MA DESE).

To prepare our students to be future ready, the Norton Public Schools will encourage educators to use the ISTE Standards for Students when developing and designing learning experiences. The Standards can be found online at <http://www.iste.org/standards/iste-standards/standards-for-students> and include:

- Creativity and innovation
- Communication and collaboration
- Research and information fluency
- Critical thinking, problem solving and decision making
- Digital citizenship
- Technology operations and concepts

Our instructional staff is diligently working to improve and increase their understanding of technology tools and resources to support teaching and learning. We will provide differentiated professional development to build upon the skill levels of staff to move towards greater proficiency and understanding of the ways in which digital tools can support technology literacy.

Staffing

Instructional technology staff for the Norton Public Schools consists of:

- 1 full-time Director of Instructional Technology
- 2 part-time elementary Instructional Technology Teachers (1.47 FTE)

Our department falls short of the MA DESE recommendations of providing one FTE instructional technology specialist per 60-120 instructional staff to coach and model appropriate technology practices. Our elementary staff does not have time in their schedules to work with teachers in a coaching capacity. We have no available staff to fulfill these duties at the middle or high school levels. Based on DESE recommendations, 2 to 4 FTE positions would need to be added to fulfill these duties district-wide. It has been recommended as a priority initiative to hire technology coaches, district-wide, to support teachers in their efforts to integrate technology within the curriculum.

The Department of Elementary and Secondary Education recommends each school district have staff specifically dedicated to data management and assessment. The Norton Public Schools currently does not have separate personnel to complete these tasks. We are conscious of the importance of hiring a data specialist and this position has been requested in the FY16 school department budget.

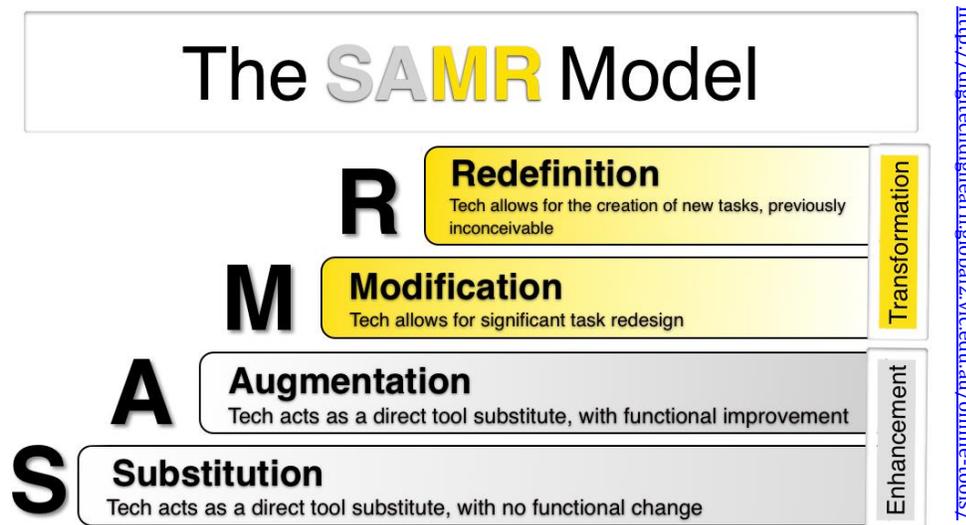
Benchmark 3: Technology Professional Development

Norton Public Schools is committed to supporting our staff in the area of Educational Technology Professional Development (ETPD). In order to provide engaging digital learning experiences that impact student achievement, teachers must first be aware of and comfortable with using available technology tools and resources. There is no one size fits all form of ETPD and we are exploring ways to meet the diverse learning needs of our instructional staff. By collaborating with the Department of Curriculum and Instruction and aligning our goals, the Technology Department plans to achieve the following ETPD goals during the 2015-2018 school years:

1. Provide differentiated educational technology professional development for all staff.
2. Develop building based teacher technology liaisons (TTLs) to offer support and training in district-wide technology initiatives.
3. Provide opportunities for teachers to explore new tools and share ideas in a collaborative atmosphere by holding “drop-in” tech sessions in each school building.
4. Develop and maintain an ETPD website, online resource and/or video channel where teachers have access to a variety of informational and instructional supports to increase their technology integration efforts.
5. Utilize “train the trainer” and “teachers as experts” models of ETPD.
6. Allocate time on the full-day professional day and/or district half-days for ETPD.
7. Embrace social media as a means of providing ETPD for staff.
8. Promote online graduate level courses and workshops.
9. Hire instructional technology coaches to provide modeling, support and co-teaching opportunities for instructional staff within all buildings.
10. Explore funding options to provide job-embedded ETPD for all staff.

To evaluate the effectiveness of the ETPD, staff will be required to sign-in and evaluate all attended sessions whether drop-in, formal or online in nature. The technology department will work to offer ETPD that is meaningful, engaging and relevant to teachers while keeping in mind available district tools and resources. We will strive to engage 100% of district staff in ongoing ETPD. Administrators and technology staff will also be encouraged to identify personal technology professional development needs. It is crucial to develop building technology leaders to model innovative uses of technology tools and resources.

The MA DESE has published a document entitled, “Beyond PARCC: The Next Generation Classroom” which recommends professional development for staff should be based on the SAMR model of technology integration as explained in the graphic below. The technology department believes strongly in supporting our teachers to move up the SAMR ladder from using technology simply as a substitution for paper and pencil to transforming teaching and learning through innovative uses of technology to support curriculum goals.



Benchmark 4: Accessibility of Technology

Hardware Access

The Massachusetts Department of Elementary and Secondary Education's goal for student hardware access by 2015 is one high-capacity, Internet connected computer for each student. The Norton Public Schools does not meet this requirement but we are creatively working to procure additional technology tools to support teaching and learning that are appropriate for all levels.

Students and staff at Norton High School have access to three mobile computer carts, each containing 30 laptop computers. There are additional computers located within the library/media center and three computer labs as well. All computers at Norton High were purchased within the last two-three years thanks to the renovation project completed at NHS in the spring of 2014.

Due to district budget shortfalls in recent years, hardware has not been refreshed in a consistent manner in our elementary and middle school buildings. The technology department is in the process of identifying existing hardware capable of being upgraded and other hardware that needs to be recycled. Once completed, viable hardware will be redistributed equitably across the district preK-8. It is our hope to develop a five-year refresh cycle for all district computers.

Three mobile carts of Chromebooks were purchased with funds received from Town Meeting in the fall of 2014. The carts were configured and one was distributed to each grade level at Norton Middle School. Due to the success of the integration of the Chromebooks among the educational teams, the purchase and/or lease of additional Chromebooks is planned for upcoming fiscal years.

We must consider the needs of all students PreK-12 as we plan our district technology purchases. Equity and balance must be provided so all students within the Norton Public Schools are afforded the same educational technology experiences regardless of the school they attend. It is a recommendation of this plan to identify the technology tools suggested for best practice implementation in elementary, middle, and high school classrooms and learning spaces and begin a cycle to acquire the necessary tools.

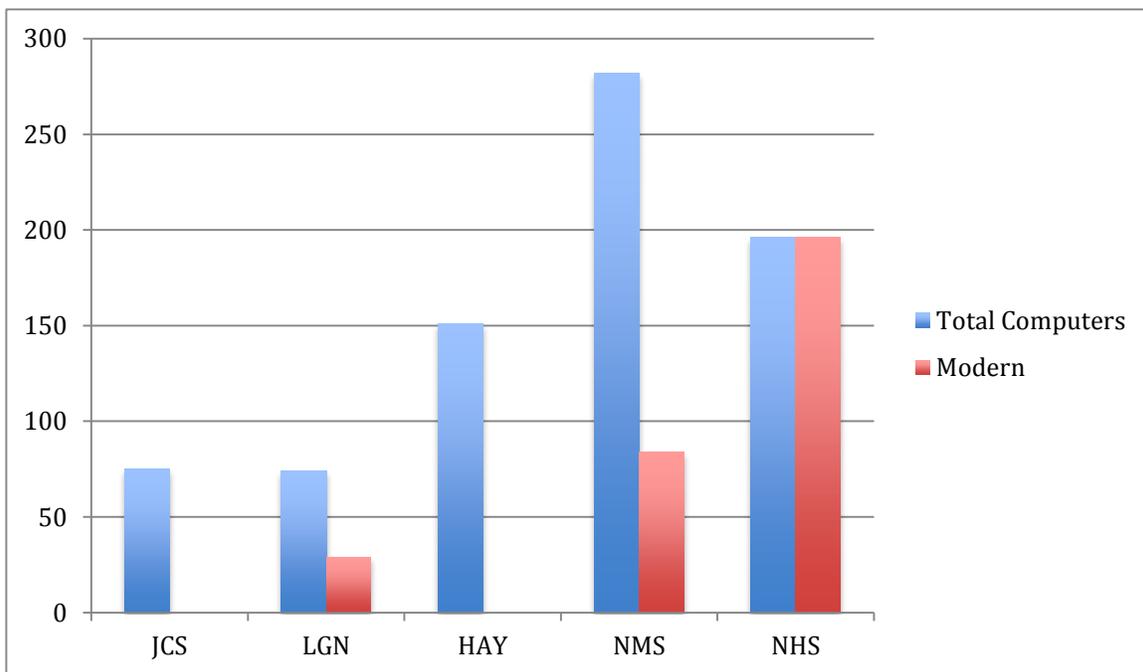
The chart at right identifies hardware inventory available in district as of March 2015.

Hardware	March 2015
Laptops	421
Netbooks	87
Chromebooks	93
Desktop Computers	699
Printers	50
Projectors	178
Interactive White Boards/Projectors	93
iPads (students/staff)	72
Document Cameras	21
Total Devices	1,714

Student Computers

The following chart specifies the number of computers found at each school site for student use. Computers are considered desktop machines, traditional laptops, netbooks and Chromebooks. In the field of educational technology, modern computers are considered to be 1 to 3 years old. Computers may be viable for an additional few years but a refresh cycle should be established once hardware has reached five years of use. The newly purchased laptops for staff in K-8 are not included in the numbers below.

School	Enrollment	Total Student Computers	Modern Student Computers	Ratio Students per Computers Total/ Modern
L.G. Nourse Elementary	358	74	29	5:1 / 12:1
J.C. Solmonese Elementary	475	75	0	6:1 / 0
H.A .Yelle Elementary	389	151	0	3:1 / 0
Norton Middle School	645	282	84	2:1 / 7:1
Norton High School	735	196	196	4:1 / 4:1
Total	2602	749	338	3.5:1 / 8:1



Internet Access

Norton Public Schools provide Internet access to all classrooms throughout the district. All schools in the district have wireless access throughout the buildings.

The district provides an external Internet connection of 100 Mbps connection for the entire district and not the 100 Mbps per 1,000 students/staff as recommended by MA DESE.

The district provides bandwidth of at least 10/100/1 Gb to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 Gb.

Networking (LAN/WAN)

The district provides internal wide area network (WAN) connections from the district to each school and between schools of at least 1 Gbps per 1,000 students/staff.

The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing.

Access to the Internet Outside the School Day

The Norton Public Schools provide access to computers before and after school for student use in each of our school buildings as needed under the supervision of staff. The district also promotes the low cost Internet access program offered through Comcast for students receiving free and reduced lunch. In addition, the Norton Public Library has Internet connected computers available for use during operating hours.

Staffing

The MA DESE recommends one FTE person to support 400 computers. The Norton Public Schools currently meets this standard by employing the following district staff to ensure our network and equipment is functioning at all times:

- 1 full-time (twelve month) Network Administrator
- 2 full-time (twelve month) Network Technicians

When there is a need to report technical problems, staff currently sends an email with concerns to a tech support account monitored by the Network Administrator, Network Technicians and Director of Instructional Technology. Although this system has worked in the district for many years, it is recommended that the technology department acquire a technology management service that will streamline the technology request process and automate inventory tracking and monitoring.

Benchmark 5: Virtual Learning and Communication

The Norton Public Schools encourages the development and use of innovative strategies for delivering high-quality courses through the use of technology. Currently, we utilize Virtual High School to expand learning opportunities for our students. We have joined the Southeast Collaborative Regional Organization (SCRO) Virtual Learning Academy to provide another avenue for online learning for our students. Starting in the fall of 2015, we will be utilizing the online tool Edgenuity as an option for credit recovery.

Technology devices, software and online learning platforms can assist as we move towards designing more personalized learning experiences for our students through a combination of face-to-face and online instruction. Blended learning instruction not only increases the flexibility and individualization of student learning experiences, but also allows teachers to expand the time they spend as facilitators of learning. The Norton Public Schools is eager to explore ways in which various blended learning models can support student achievement.

The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level. Staff is encouraged to utilize such video learning opportunities where appropriate. Classroom applications of virtual learning may include courses, collaborative projects, field trips, and discussions.

The Norton Public Schools maintains an up-to-date website which can be found at www.norton.k12.ma.us We are working to update our online presence to provide a consistent experience for families and community members to locate information about our schools and classrooms. The district provides all staff members with an email account for professional use. We also encourage the use of social media by district staff as a means to share pertinent school and classroom information.

Benchmark 6: Safety, Security and Data Retention

The Norton Public Schools has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.

The District educates teachers and students about appropriate online behavior. Digital citizenship topics are formally taught at the elementary level where we have instructional staff in place. Topics include cyberbullying, potential risks related to social networking sites, and strategies for dealing with these issues. As we update curriculum, these topics will be embedded within grade level curriculum projects. It is recommended that we consider an instructional technology position at Norton Middle School to continue to support students and staff in these areas.

The District has a plan to protect the security and confidentiality of personal information of its students and staff. The district complies with federal and state law and local policies for archiving electronic communications produced by its staff and students. The district informs staff

and students that any information distributed over the district or school network may be a public record.

Summary

The Norton Public Schools has a renewed focus on providing modern technology tools for our students and staff to engage in 21st century learning experiences. By providing targeted and differentiated ETPD opportunities, staff will move from the substitution level of technology integration to designing transformative lessons that will ultimately impact overall student achievement. The following elements are key recommendations of our technology plan for the 2015-2018 school years:

1. Design student, staff, and community technology surveys to be distributed twice a year to gauge progress in the area of instructional technology.
2. Focus efforts on achieving technology initiatives outlined in the Norton Public Schools Strategic Plan for 2015-2018.
3. Develop an instructional technology curriculum based on the new Massachusetts Digital Literacy and Computer Science Standards due to be published in the fall of 2015.
4. Create technology coaching positions preK-12 to support teachers in their efforts to integrate technology effectively within core curriculum.
5. Identify technology tools to outfit modern elementary, middle school, and high school classrooms and learning spaces and develop a cycle for acquisition.
6. Hire a data specialist for student and staff data management including support for state mandated data reporting requirements.
7. Maintain MA DESE recommended network support personnel within the district.
8. Acquire a technology management service to streamline the technology support process and automate inventory tracking.
9. Advocate for an instructional technology position to be added at Norton Middle School to allow for a continuation of digital literacy instruction.

References

Beyond PARCC: The Next Generation Classroom

<http://www.doe.mass.edu/odl/NextGenClassroom.pdf>

Effective Professional Learning Strategies [http://tech.ed.gov/wp-](http://tech.ed.gov/wp-content/uploads/2014/11/Section-4-Effective-Professional-Learning-Strategies-FINAL.pdf)

[content/uploads/2014/11/Section-4-Effective-Professional-Learning-Strategies-FINAL.pdf](http://tech.ed.gov/wp-content/uploads/2014/11/Section-4-Effective-Professional-Learning-Strategies-FINAL.pdf)

Framework for 21st Century Learning <http://www.p21.org/our-work/p21-framework>

ISTE Standards for Administrators <http://www.iste.org/standards/iste-standards/standards-for-administrators>

ISTE Standards for Coaches <http://www.iste.org/standards/iste-standards/standards-for-coaches>

ISTE Standards for Students <http://www.iste.org/standards/ISTE-standards/standards-for-students>

ISTE Standards for Teachers <http://www.iste.org/standards/iste-standards/standards-for-teachers>

Massachusetts Digital Literacy and Computer Science Standards (Expected spring 2015)

<http://www.doe.mass.edu/STEM/standards.html>

Massachusetts Technology Literacy Standards and Expectations (2008)

<http://www.doe.mass.edu/odl/standards/itstand.pdf>

National Education Technology Plan <http://tech.ed.gov/netp/>

Online Professional Learning Quality Checklist

<http://tech.ed.gov/wp-content/uploads/2014/06/Online-PD-Checklist-ISTE.pdf>

Technology Skills for Online Assessments found online

<http://www.doe.mass.edu/news/news.aspx?id=10327>

The Future Ready District: Professional Learning Through Online Communities of Practice

<http://tech.ed.gov/futureready/professional-learning/future-ready-district/>