SAU#19
Technology & Tech Maintenance Plan
2016-2019

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SAU#19 Director of Information Technology
And the SAU#19 Technology Advisory Committee

Index

Technology Advisory Committee

The SAU#19 Technology Advisory Committee assists in the planning, evaluation and oversight of this plan and its components. The Advisory Committee is charged with the following responsibilities:

- Research and develop a program philosophy that is consistent with national and state guidelines.
- Provide recommendations for integration of technology across the curriculum, to remain current with advances in the use of technology.
- Update Information and Communication Technologies (ICT) expectations for teachers and students, and provide an implementation timeline.
- Integrate ICT standards in a way that is consistent with the district mission.

Members of the Technology Advisory Committee include:

- Superintendent of Schools
- Assistant Superintendents
- Technology Director
- School Principals
- Curriculum Coordinators
- Teachers from each school representing regular and special education
- Members of the Technology Department

Introduction

SAU#19 Demographics

SAU#19 includes the towns of Goffstown and New Boston. They are located in a picturesque setting with mountains, forested hills, winding rivers, and attractive New England village centers. Goffstown and New Boston are located in Hillsborough County in the southern part of New Hampshire and are only 60 miles from Boston, Massachusetts, 70 miles from New Hampshire's White Mountains or 50 miles from the seacoast. Their proximity to major north-south and east-west routes, the state's largest airport, and to southern New Hampshire's major municipalities and business centers makes them an attractive residential location. Recreational opportunities, including hiking, swimming, boating, fishing, rafting, snowmobiling, skating, abound.

Goffstown is nestled in the shadow of the twin peaks of the Uncanoonuc Mountains. It is directly to the west of Manchester, the state's largest city. Goffstown is an enviable place to live or work for its approximately 18,000 residents.

New Boston borders Goffstown and has a population of just over 5,300 and is home to the Hillsboro County Fairgrounds and the New Boston Air Force Station, which started as an Army Air Corps bombing range in 1942. New Boston has a quaint village center along the scenic Piscataquog River.

Schools

The schools in SAU#19 are:

- Glen Lake School located at 250 Elm Street with approximately160 students in preschool and kindergarten
- Bartlett Elementary School, located at 689 Mast Rd. with approximately 200 students in Grades 1 through 4
- Maple Avenue Elementary School, located at 16 Maple Avenue with approximately 500 students in Grades 1 through 4
- Mountain View Middle School, located at 41 Lauren lane with approximately 1000 students in Grades 5 through 8
- Goffstown High School, located at 27 Wallace Road with approximately 1,200 students in Grades 9 through 12
- New Boston Central School with approximately 550 students in grades pre-K through 6.

Mission Statement

Advancing Student Learning: The mission of School Administrative Unit #19 is to develop and support an educational community that advances rigorous standards for learning for all students, resulting in high student achievement.

SAU #19 Vision Statements

1. The Educational Community is responsible for setting high standards for student learning.
2. The Educational Community communicates and analyzes district, school and student expectations and achievements.
3. The Educational Community fosters individual and group responsibility.
4. The Educational Community promotes and holds individuals accountable for a safe and caring environment.
5. The Educational Community instills a lifelong desire for learning; recognizing this as an ongoing process.
6. The Educational Community develops student and staff ability to problem solve, make decisions involving creative and critical thinking, research, and application.
7. Our schools are adaptable and flexible in an ever-changing environment.

SAU #19 Educational Goals

In partnership with family and community, our goals are as follows:

- All students will develop reading ability in order to comprehend content materials at or beyond what is required at each level.
- All students will develop their writing skills in order to communicate effectively in each content area.
- All students will acquire mathematical skills and applications at or beyond the level needed to succeed in each content area.
- All students will participate in educational experiences beyond the core curriculum and the boundaries of the traditional classroom (such as community service, athletics, student council, band, drama, etc.).

SAU #19 Educational Community Roles

The purpose of our schools is to promote learning. While learning occurs primarily through faculty and student interaction, each member of the Educational Community serves an important role in Advancing Student Learning. The following statements are examples of those roles. They are not intended to be all-inclusive.

Student Roles

- To take responsibility for their own learning by setting learning goals for themselves.
- To treat all members of the learning community with respect.
- To take an active role in expanding learning beyond the classroom.
- To be a role model to other students of appropriate behavior and learning. Support

Staff Roles

- To support students in attaining their learning goals.
- To support classroom and school environment in assisting students to reach their goals.
- To take an active role in modeling appropriate behavior and learning.
- To continue to learn and to upgrade skills to assist in the school community.

Educator Roles

- To look upon student learning as their number one responsibility.
- To employ a variety/range of instructional strategies to insure student achievement.
- To utilize research, knowledge and experience to enhance student outcomes.
- To create a learning environment that supports learning.

- To assist students with setting learning goals at the beginning of each school year.
- To be a role model to students and the community of appropriate behavior and learning.
- To continue to advance and upgrade their own professional growth.
- To provide students with opportunities for learning and involvement beyond the classroom experience.

Administrator Roles

- To act as cognitive coaches for staff; they model good teaching.
- To support exploration and experimentation in teaching and learning.
- To act as role model to students, staff and community of appropriate behavior and learning.
- To continue to advance and upgrade their own professional growth.

Parents/Guardians/Caregivers' Roles

- To set high standards of learning at home.
- To promote a healthy environment at home.
- To send their children to school ready to learn.
- To act as role models of behavior and leaning.
- To help and support children at home with their learning.
- To be involved in their child’s school through assisting and volunteering.
- To support an appropriate school district budget.
- To serve in a partnership with school personnel in educating children.
- To support and encourage their children to become involved beyond the classroom.

SAU Office Roles

- To provide appropriate plans and resources to meet goals.
- To provide district employees with the support and encouragement to carry-out their specific roles.
- To serve as role models for the educational community of appropriate behavior and learning.
- To continue to upgrade and advance their own professional growth.
- To provide evaluation materials to be used as pre-post testing guidelines to measure growth.
- To provide resource materials, personnel and support for students identified as not being able to accomplish academic goals by the end of each school year.
- To develop resource guides for each curriculum area that include classroom expansion activities.
- To draft a scoring rubric for writing which will be consistently used throughout the SAU.

- To identify the mathematics benchmarks selected as level of competency to be used for each grade level.
- To provide supportive and efficient Business Services to each school and district.
- To provide specialized student services and support through Special Education Services.

School Boards Roles

- To develop and support a realistic and appropriate budget to the educational community.
- To serve as role models of appropriate behavior and learning.
- To be visible to the educational community in school activities and functions.
- To be open and encouraging of district employee dialogue and discussion.
- To be active members of district initiatives.
- To open the dialogue with the greater community on the role of the school in the community.

Communities' Roles

- To support a realistic and appropriate budget.
- To assess the effectiveness of the learning community.
- To support opportunities for expanding learning in the community.
- To support learning opportunities beyond the classroom.
- To be actively engaged in setting high standards for the educational community.

Technology Vision & Philosophy

Information technology has changed how we work, communicate, recreate, access information and services, and learn. The impact and importance of technology in every aspect of our daily life will continue to grow and expand in importance. Technology includes not only computer systems, but a wide spectrum of fields converged around a digital umbrella. This includes digital video and photography, graphic tablets, personal digital assistants, music synthesizers, voice and video communication /conferencing systems, safety monitoring and emergency alerting systems, and more. Technology is transforming our society because it makes possible what was previously unimaginable. Because of the unprecedented potential of technology to impact our lives and our world, we must ensure that students acquire the knowledge and skills necessary to succeed in technology-based environments.

Technological literacy has become a new basic skill, but this important new basic skill does not just apply to students. Administrators, teachers, and other educators need training and support to gain and maintain the technology literacy and related professional development to effectively integrate technology to enhance teaching and learning. Properly used, technology will:

- Advance student learning
- Support professional development
- Increase administrative productivity
- Increase equity
- Facilitate communication
- Provide access to vast information resources
- Develop 21st century real-world skills

As technologies are increasingly integrated, they will make vital contributions to educational programs focused on high standards, student achievement, technology literacy, and global awareness.

The goal of technology integration is to promote higher-level thinking in students. Students should view technology as a learning tool that makes curriculum more relevant, more active, and more dynamic. Students must make a connection between the technology application and its practical use in meaningful, complex thinking situations. Technology should be used to support standards-based instruction, consequential learning, and problem solving. This is why it is important that technology be utilized at the point of need in the context of core subject areas, not as a pullout program detached from "real" instruction. Technology literacy implies a positive attitude about the use of technology and the application of technology based on ethical standards.

There must also be consistency in the application of technology. A student's exposure to technology should not be dependent upon the particular path traveled through the educational system. Assured learning experiences must be established for technology skills along with other subject area components.

Technology integration does not mean indoctrinating students on specific computer applications or systems (that may or may not be relevant by the time they enter the workforce), or testing students on menus or mouse clicks. The best prepared students will be comfortable using a broad range of technological tools, and will be able to select the most appropriate tool for a given assignment. The educational focus should be on higher-level learning skills, such as presentation, design, organization, composition, information gathering, and data analysis.

The application of technology must be driven by need and function, not by what is available from a specific vendor. Purchases must consider both the short- and long-term impact on taxpayers while maintaining system effectiveness. To this end, it is critical that the district infrastructure develops as an open, inclusionary system and, to the greatest extent possible, be based on non-proprietary systems.

Because it is impossible to predict what significant technological innovations might lie beyond the horizon, this Technology Plan must remain a dynamic and living document. It should be reviewed often and "course corrections" should be made as appropriate. The Technology Plan will be coordinated, managed and evaluated by the SAU#19 Director of Information Technology in collaboration with administrators, curriculum committees, instructional and support personnel, and the School Boards.

Specific Technology Goals

SAU#19 supports the use of technology to improve the delivery of the curriculum and to advance student learning by making the educational process more efficient, relevant and engaging.

Technology will be used to develop 21st century real-world skills and to prepare students for living and working in a technology-driven world.

Technology will be used in such a way that it assists our schools in meeting or exceeding NH School Minimum Standards, NH Curriculum Standards, NH Professional Standards, NH Information and Communication Technology Standards, National Educational Technology Standards for Students and Teachers, and Information Power Standards.

Technology will be used to increase productivity and improve communication with all participants in the educational process, including students, teachers, administrators and parents.

Technology tools will be used to improve assessments and to analyze results of assessments so that decisions can be made using accurate data in a timely manner.

Technology use will be evaluated by way of national, state, and local surveys, questionnaires, artifact evaluation and other means on an ongoing basis so that course corrections will be ongoing and based on the best and most current information available.

History of the SAU#19 Technology Program

Over the past decade, as the importance of integrating technology into the curriculum has become evident, the need for access to technology has correspondingly increased. Early networks in our buildings were rudimentary, and operated at low speeds. The numbers of computers were low and the varieties of applications found on them were very limited. There was no thought given to a wide area network linking buildings, and students were not given their own personal logons or network spaces.

Today our buildings have high-speed networks with advanced wireless access throughout. Our buildings are linked via self-managed high bandwidth leased fiber optic media, including between the Goffstown and New Boston School Districts, and our servers can be administered and backed up over the WAN.

The end-user computer systems are diverse and appropriate for the content area in terms of function, peripherals and software. Our connection to the Internet is via high-bandwidth fiber, and servers are located in the demilitarized zone of our firewall for access both internally and externally.

In the past, students learned about computers in specialized programming classes or pull-out programs. Today, our students use computers as essential tools in content areas such as music, art, photography, Computer Aided Design (CAD), video production, journalism, and math. Students in the district have their own personal network logon and private network home folder that can be accessed from any classroom or computer, regardless of platform. Additionally, students are able to collaborate using cloud based services such as Google Docs and Microsoft Office 365.

Computers and related equipment are adequate at the time of this writing, with multi-purpose and specialized labs, both mobile and fixed, located throughout the SAU. Every teacher has a laptop computer, which has been key to making technology integration a reality. This equipment has been purchased through the school budget process, via grants, in-kind donations, and donations from local companies.

Current Infrastructure (Fall 2017)

A local area network (LAN) is enabled in each district building with high bandwidth PoE switches with multiple special purpose VLANs throughout. The backbone bandwidth in all schools is 10 Gbps. This same capacity is carried over our wide area network (WAN) to a centralized firewall with CIPA-compliant content filtering (a service that blocks or "filters" undesirable, dangerous or inappropriate Internet content). A 1 Gbps fiber-based synchronous Internet circuit is located at network hub, Goffstown High School where the majority of our servers are located.

Wireless throughout the Goffstown School District is via Fortinet 802.11ac, which offers gigabit bandwidth. Density of access points is currently adequate however it is foreseeable that increased density may be required at some point in the near future, especially with the proliferation of student-owned devices which we permit on our open network. The open network is isolated from our private school network and all internal assets.

The New Boston Central School has 802.11n wireless deployed. Their Wi-Fi technology while still functional, is End-Of-Life and will need to be replaced in the near future.

The authentication infrastructure in the district is MS Active Directory (AD). A single domain is implemented throughout both districts (a second independent AD domain is maintained at the business office for data isolation purposes). MDM service and Profile Manager is also deployed for managing OSX and iOS devices. This environment fully supports both Mac OS X clients, Windows clients and iPads. Each student has his/her own personal logon and network space.

There are currently approximately 25 servers throughout the district. This number includes domain controllers at every building, application servers, file servers, web servers and other specialized systems. The main climate-controlled data center is located at the high school, where servers that are utilized SAU-wide are housed. These applications include: PowerSchool (Goffstown only), Web2School (New Boston only); Meal Magic (cafeteria system); Moodle (online learning management); SuccessMaker, (remedial support application); and Destiny (web-based library system). These services can be accessed from school or at home. In addition, students are able to access Google Docs, MS Office 365 and many other online services using their AD credentials.

The majority of our classrooms are equipped with interactive white board technologies, in the form of touch enabled projection systems or LCD panels. Additionally, "Smart Labs" are available SAU-wide. These rooms consist of multi-user computer systems that are set up and ready to use by a full class of students. The rooms consist of interactive systems, media players, document cameras, conferencing cameras, wireless microphones and more. These rooms are in constant use by a wide spectrum of content areas and are highly effective learning environments. Supplementing these labs are numerous Wi-Fi enabled mobile computer or iPad labs in each building that can be signed out by teachers and brought to the classroom. These multi-purpose environments are in addition to special purpose labs with specific tools outfitted for specialized learning environments.

Classroom software applications installed throughout the district are grade level and curriculum appropriate. Examples of this software include:

KidPix
Inspiration/Kidspiration
PrintShop
Microsoft Office
Adobe CS
Solidworks
LogicPro
iLife and more

Specialized administrative systems include:

Efinance+ (formerly Sungard Pentamation)
MyLearningPlan
Aesop
PowerSchool (Goffstown)
Web2School (New Boston)

Phone Systems

A Cisco IP Phone system and Unity voice messaging system is in use in the Goffstown district. The call processing servers are located at the high school and other buildings connect to the call manager via the wide area network (WAN). Voice packets are kept on a separate VLAN to isolate them from other data traffic. This system is administered via a web interface and can be accessed from anywhere within the district. The web interface allows district support technicians to make adds and changes to the system that previously required outside support. The Goffstown system is E911 compliant.

The New Boston phone system is an obsolete Panasonic key system. It is not E911 compliant. In the summer of 2017 a dark fiber link was installed from the Goffstown district to the New Boston Central School. This link can be used to allow staff at NBCS to utilize the SAU#19 Cisco system.

Security Systems

Security systems are critical to keeping our schools safe. These systems include video monitoring, emergency notification, access control, fire alarm and panic systems. These systems often integrate with the phone, network, student management and other systems to form a complete package. The systems must be tested often for functionality and drills must be used so that the appropriate responses are automatic. A preventative maintenance plan is utilized to highlight deficiencies which need to be rectified in a timely manner.

The New Boston Central School utilizes a computer based security monitoring system using Milestone software with high definition IP cameras that are accessible on the network and is currently adequate.

The Goffstown security monitoring system uses an older, less functional analog system.

The Goffstown system is not centrally managed. It is comprised of 11 independent DVRs using standard definition cameras which are connected to the DVRs via coax cable. This system is outdated, inadequate, and difficult to manage. Replacement of this system has been included in the Goffstown CIP budget.

General System Maintenance

In order to keep a modern technology infrastructure fully functional, the hardware and software must be kept reasonably up-to-date. This involves having a hardware replacement plan for various servers, network devices and systems. Software should be kept up-to-date as well. In particular, security related patches and updates must be applied in a timely fashion in order to be effective. Maintenance and support agreements will be kept current for all critical components.

Damaged systems and peripherals should be repaired or replaced. Improperly functioning devices can be frustrating for end users and, in the case of safety devices, can put the safety of students and staff at risk. An example of this would be a non-functional walkie-talkie, malfunctioning access control, or panic button failure in an emergency situation.

Additionally, the Technology Director should be constantly appraising the functionality of all equipment and systems, and should recommend enhancements to administration as they become available and practical.

Current Trends in Educational Technologies

Locally Created Content: The Goffstown School District Teacher Laptop Program, combined with ready access to "Smart Rooms" and interactive presentation systems have placed the tools that enable the creation of customized educational content into the hands of educators and their students. This content includes digital audio, podcasts, video presentations, and other multimedia content that only a few years ago would have required studio equipment costing many tens of thousands of dollars. These tools empower teachers, engage students, and bring the curriculum to life.

Videoconferencing: The district has invested in group systems with multiple cameras, and individual computer-based systems for person-to-person conferencing. Our group systems are used for professional development, virtual field trips, and online learning. Whenever possible, these tools are shared with the community, such as with the Wild New Hampshire Videoconference Series, hosted by the New Hampshire Fish & Game Department, and the BeNetSafe Internet Safety Program sponsored by the GSDLN and other programs.

At the other end of the spectrum are personal videoconferencing and text chat systems. A few short years ago, these systems were unreliable and difficult to set up and troubleshoot. Today, desktops, laptops, tablets, and smart phones come with built in web-cams and high quality, easy to use conferencing software programs. These systems open up the classroom to new possibilities for learning, sharing and collaboration across the district or across the world. SAU#19 teachers are embracing this technology and have added a new dimension to their instruction. These tools, combined with the district's Moodle course management system, creates a fully functional e-learning experience.

Cloud Computing: The district has made a significant investment in its network infrastructure, as highlighted previously. Our current infrastructure enables "cloud computing" where the "network is the computer." Computing has moved from stand-alone systems, to proprietary client/server systems, and now to web-based services that can be accessed and administered from any computer, anywhere, regardless of platform, with only a standard web browser client. Some of the systems that have undergone this migration are our student information system, which transitioned from four independent stand-alone systems to one web based system, our library system, which similarly migrated from four servers to a single web server.

Virtualization: Server virtualization, the ability to host multiple complete OS images on a single hardware platform, is an emerging technology that may be of benefit to the district. This technology could allow for consolidation of many of our small individual servers onto a single, large server, without changing how the applications or OS is managed.

Open Source Software: In recent years, open source software has rapidly gained in popularity. Open source software refers to computer programs or operating systems for

which the program and the source code is freely available. Inherent in the open source philosophy is the freedom of a distributed community of programmers to modify and improve the code. The advantages of the use of open source software in a public school environment are obvious, and many districts have already embraced it. Not only does the district save the money that would have been spent on commercial software, but the same software used in school can be freely distributed to students and teachers for use at home. Access to the source code can also provide unique educational opportunities in software programming classes. The district has successfully utilized the Apache web server, Moodle, Joomla, OneOrZero, and numerous other open source distributions on its servers. We will evaluate and utilize open source implementations on both servers and clients where such use is appropriate, feasible, economical, and efficient.

Hand-held Devices: The Goffstown School District has piloted programs using student response systems, touchscreen tablets and other devices. As the popularity of hand-held devices, including touch screen systems, multi-purpose audio and video player/recorders increase, and their educational value is demonstrated, they will be adopted into the curriculum. We anticipate a day in the near future when all textbooks and reference materials will be downloaded on to touchscreen devices and made available for loan from the school library. We believe that this type of device will revolutionize education and will make one-to-one computing much more affordable at all grade levels.

Interactive Whiteboards: Interactive whiteboards, such as the SmartBoard, Promethean, Bright-link and Eno Board systems installed throughout the SAU, create a 21st century learning environment where teachers and students interact with the curriculum and each other. Students become engaged, participatory learners. One-to-one computing excels for individual and small group research and work. When combined with the proper software, wireless networks and interactive shared learning spaces, a powerful and flexible learning environment is created.

The ASP Model: Application Service Providers are third-party entities that manage and distribute software-based services and solutions to customers across a wide area network from a central data center. These applications are normally web-based, but could be thin–client based as well. ASPs are a way for organizations to outsource some aspects of their information technology needs. The benefits include reduced or eliminated hardware costs, reduced administration and maintenance, and lower upstream network bandwidth requirements. The ASP model was chosen for the district's new Financial/HR system, Efinsnce+, Aesop, MyLearningPlan and other systems. Hoonuit (Atomic Learning), United Streaming, and the numerous educational databases used in our Information Centers are web-based ASP solutions that are used directly with students for educational purposes. At the elementary level, core curriculum in math and reading is delivered through web-based sites connected to the Everyday Math program and Reading Streets. These sites provide students with direct practice of skills, instruction, re-teaching and are accessible to students at home as well as in school. We utilize web-based productivity tools, including calendaring systems, online spreadsheets, and web-based writing tools offered by service providers such as Google, O365, and many others.

Information and Communication Technologies Literacy

The District meets ED 306.42(a)(1) to (a)(5) through the development of assured learning experiences at each grade level using the portfolio process in Grades K-8 and optionally in 9-12. Our infrastructure, in the form of individual student log-ins and network accounts with shared folders, is ideally suited for portfolio creation. Appropriate fields in our student management system indicate the successful completion of this task. Teachers at all grade levels have developed common experiences that result in portfolio artifacts and related documents.

At the middle school, students are guided through the creation of a Microsoft OneNote file that contains their reflection. This file is used to link to or embed their digital artifacts. These documents are stored in the student's Office 365 cloud and are available for viewing by teachers within the district. Completion of the 8th Grade Portfolio requirement allows the student to participate in higher-level technology course offerings at the high school level.

Higher level course offerings at the Goffstown High School range from programming, web design, CAD, graphics, video production, digital music and more.

See http://www.nheon.org/oet/standards/ICTLiteracy.htm for more information on ED 306.42

Access to Technology

Our administration, school board and community recognize the importance of providing easy access to technology resources. All of our teachers have laptops. Each building has wireless Internet, an ample inventory of LCD projection/interactive systems, and every classroom has multimedia capable computers for student use. In addition to this, all of our schools have multiple sets of well-maintained mobile labs with 25 laptops on-board. Multimedia rooms, multi-purpose and single purpose computerized labs are in use. Much of this equipment is leased, resulting in a built-in upgrade cycle of three to four years.

This technology is supported by a team of IT specialists and technology integrators that pride themselves on rapid response and a commitment to customer service.

Staffing

NBCS has a dedicated computer technician, the Goffstown elementary schools share a technician. MVMS currently has a technician and an integrator. The High School has a support specialist, a database manager and a computer technology educator that works additional hours as a technician under a separate contract. These individuals report to the District Director of Information Technology. The Director of Information Technology reports to the Superintendent of Schools.

The members of this group have individual assignments and they also work collectively as a team to support each other and the needs of the District. Over the past several years the district's inventory of computers, servers, and communication systems have increased dramatically while our staffing levels have remained constant. As of this writing, we have 2,000 computers being serviced by 4.5 technicians. The Gates Foundation and ISTE have published a guide to technology staffing. SAU#19 is currently off-the-chart inefficient according to this guide.

Gates Foundation/ISTE Tech Support Staffing Index

High Efficiency	**Satisfactory Efficiency**	**Moderate Efficiency**	**Low Efficiency**	**SAU#19**
Computer-to-technician ratio is less than 75:1	Computer-to-technician ratio is between 75:1 and 150:1	Computer-to-technician ratio is between 150:1 and 250:1	Computer-to-technician ratio is over 250:1	**2011 SAU#19 Computer-to-technician ratio 444:1**

While a skilled and dedicated staff combined with thoughtful implementation of reliable technologies is presently keeping our systems operational, these staffing levels need to be reviewed and addressed in order to maintain acceptable levels of service to administrators, teachers and students.

Professional Development

In addition to providing and supporting the hardware, end-users must be trained in effective use of this technology. It is essential that teachers be prepared to function in a technology-rich student-centered environment. A variety of professional development opportunities are available to all faculty and staff. To provide for assured learning experiences for educators and staff, professional development opportunities should be built into the schedule of teacher workshop days, school vacation time and other times when staff can attend these sessions. All of our staff, students and their families have access to Hoonuit (Atomic Learning), an online point-of-need streaming video-based software training system.

In addition to the professional development outlined above, in order to develop skills and keep current with emerging technologies, members of the technology team must regularly participate in technology workshops, seminars, and courses.

Community Involvement

Community collaboration is a priority at SAU#19. We believe increased interaction between parents, teachers and students will benefit a child's education and development.

Teachers use email, telephones and voicemail to communicate with parents personally or via School Messenger. We maintain and constantly update our website to communicate with the community. We utilize social media, and in particular FaceBook pages for each of our schools to share information. We utilize the local PEG access station and a YouTube video channel to keep our community up-to-date with district information, activities and proceedings.

Our student management systems are available for parent access to school announcements, attendance, lunch and fee balances, and attendance. Grades at the middle and high school are available on line in real time to parents.

Our Adult Education Program (the GAP) and our videoconferencing technology are used to deliver educational services to the community and our facilities are available for appropriate civic and community activities.

Evaluation of the Technology Plan

The Goffstown School District participates in a number of national and state technology surveys. Additionally, the district uses a number of in-house methods to evaluate the use of technology in the classroom, including regular district-level surveys of technology use, classroom observations, collection of artifacts and anecdotal evidence. The ICT portfolio process has been a tremendous demonstrator of the effectiveness of technology integration in our schools.

A technology component is part of the review and assessment process. This data indicates that there has been a very significant increase in the understanding and use of technology in the classroom over the last several years, especially as our teacher laptop program has matured and expanded throughout the district. We review the outcomes of these surveys and assessments regularly in order to refocus the goals of the plan as needed.

SAU#19 Technology Budget

Providing an adequate budget to support this plan is key to its success. Funds come from the local tax base and from state, federal and private competitive grants. The following section outlines the funds needed to support this technology plan. As technology changes and new technology is developed this portion of the document will evolve.

The budgets presented below will allow for the continuation of our Teacher Laptop Program, will enable the district to continue on a five-year or better replacement cycle on computer systems, to work towards a goal of creating 21st Century Classrooms throughout the district, fund a repair program to keep the equipment functional, and to provide regular reviews of all systems, services and implementations so that they can be maintained, replaced or enhanced as necessary. Funded elsewhere will be the staffing to provide appropriate technical and integration assistance to support these initiatives.

Description	2015-2016	2016-2017	2017-2018	2018-2019
Equipment leases (laptops)	$209,700	$209,700	$209,700	$209,700
Student Management System Maintenance Fees	$19,752	$19,752	$19,752	$19,752
Replacement Equipment with goal of 5-year cycle on equipment (computers, monitors, printers, etc)	$129,400	$129,400	$129,400	$129,400
Repair parts and supplies to keep equipment functional	$15,500	$15,500	$15,500	$15,500
Interactive presentation systems in classrooms (replacements and upgrades)	$50,000	$50,000	$50,000	$50,000
Digital imaging equipment (scanners, digital still cameras, digital video cameras and other media devices)	$3,500	$3,500	$3,500	$3,500
Network Maintenance and Upgrades (new wireless, faster switches and routers, fiber, etc.)	$7,000	$7,000	$7,000	$7,000
Web-based educational subscriptions	$15,500	$15,500	$15,500	$15,500
Internet/Content Filtering	$20,750	$20,750	$20,750	$20,750
Software licenses to support the curriculum, for productivity, maintenance renewals, antivirus, backup, and other applications	$68,500	$68,500	$68,500	$68,500
Voice & Video Communications (Hardware/software)	$10,000	$10,000	$10,000	$10,000
New initiatives & Pilot Programs (TouchPads, Virtualization, Theater AV, etc.)	$25,000	$25,000	$25,000	$25,000
Totals	**$574,602**	**$574,602**	**$574,602**	**$574,602**

Goffstown School District
Technology Standards for Teachers

1. TECHNOLOGY OPERATIONS AND CONCEPTS.
   Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:
   - Demonstrate knowledge, skills, and understanding of concepts related to technology as described in the Goffstown School District Technology Standards for Students in order to appropriately instruct students in accordance with grade-level requirements. (Teachers should demonstrate mastery of concepts equal to their level of certification)
   - Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.

2. PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES.
   Teachers plan and design effective learning environments and experiences supported by technology. Teachers:
   - Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
   - Apply current research on teaching and learning with technology when planning learning environments and experiences.
   - Identify and locate technology resources and evaluate them for accuracy and suitability.
   - Plan for the management of technology resources within the context of learning activities.
   - Plan strategies to manage student learning in a technology-enhanced environment.

3. TEACHING, LEARNING, AND THE CURRICULUM.
   Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers:
   - Facilitate technology-enhanced experiences that address content standards and student technology standards.
   - Use technology to support learner-centered strategies that address the diverse needs of students.
   - Apply technology to develop students' higher order skills and creativity.
   - Manage student learning activities in a technology-enhanced environment.

4. ASSESSMENT AND EVALUATION.
   Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:
   - Apply technology in assessing student learning of subject matter using a variety of assessment techniques.
   - Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.

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

5. PRODUCTIVITY AND PROFESSIONAL PRACTICE.
   Teachers use technology to enhance their productivity and professional practice. Teachers:
   - Use technology resources to engage in ongoing professional development and lifelong learning.
   - Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.
   - Apply technology to increase productivity.
   - Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning. Specifically, teachers should:
     - Check email and respond to email and voicemail on a daily basis
     - Create and maintain a web page with assignments updated on a weekly basis
     - Use the online student management system to submit classroom attendance
     - Using the electronic gradebook at the middle and high school levels and the online student management system, post and update information on a weekly basis (in grades and courses where appropriate)
     - Use the online forms to submit Technology work requests and Maintenance work requests
     - Participate in professional development opportunities to increase skill level and ability to use technology effectively

6. SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES.
   Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply those principles in practice. Teachers:
   - Model and teach legal and ethical practice related to technology use.
   - Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.
   - Identify and use technology resources that affirm diversity of thought.
   - Promote safe and healthy use of technology resources.
   - Facilitate equitable access to technology resources for all students.

   Orientation sessions will be given to teachers new to the district and regular courses and workshops will be offered through the SAU to advance teacher skills in technology applications and integration. These offerings will be based on needs identified through the LoTi and internal surveys.

   This document is based on the ISTE NETS for Teacher Standards, available online at: http://cnets.iste.org/teachers/t_stands.html

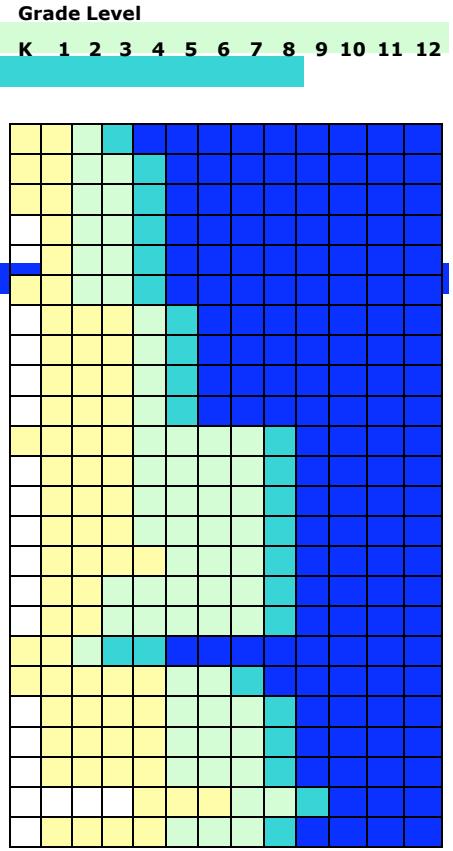
Goffstown School District
Student Technology Standards

Instructional Level Key:
Introduce
Develop
Reinforce

Assumes increasing skill complexity and level of application across grade levels.

BASIC OPERATIONS

Students understand the nature and purpose of technology hardware and its operation:



Turn on/off a computer
Use input devices (e.g. mouse, keyboard) and output devices (e.g. monitor, printer)
Identify major hardware and software components of a computer system
Know user name and password
Log onto and off of a computer (network share)
Develop knowledge of basic computer and network terminology
Navigate and use network shares for file storage and transfer
Understand differences between local computer and network
Create and organize files and folders
Use terminology related to the use of computers and technology appropriately in written and oral communications
Recognize keyboard components; ie alphanumeric keys, special function keys, enter/return keys, delete keys, etc
Use correct typing technique
Use keyboard with ease and fluency
Use the keypad and identifies numerical operations
Use special function keys (e.g. backspace, caps lock, delete and punctuation)
Access and save a document to a storage device
Recognize and select print options
Print a document
Identify and use standard icons, tool bars, and menus
Identify the type of file from its extension (.doc, .ppt, .jpg, etc.) or icon
Understand the concept of computer viruses and the purpose of virus prevention programs
Use imaging tools such as digital cameras and scanners
Perform basic troubleshooting (check cables, plugs, settings, etc.)
Identify common operating systems and applications by their name and icon

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SOCIAL, ETHICAL AND HUMAN ISSUES

Students understand the ethical, cultural, and societal issues related to technology.

Develop an understanding of the effects of computers in industry, business and society
Use media and technology to identify a variety of occupations
Use technology whenever appropriate to solve problems related to basic living skills
Cite examples showing how society can affect the direction taken by science and technology
Define and practice proper Nettiquette
Develop understanding of Internet as a global resource
Discuss the concept of intellectual property & plagarism
Discuss Internet safety issues and practice responsible Internet navigation
Explain and demonstrate ethical and responsible use of Internet and Local Area Network resources

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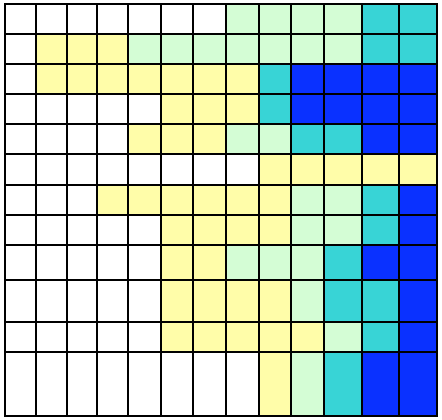
TECHNOLOGY PROBLEM SOLVING AND DECISION MAKING

Students employ technology in the development of strategies for solving problems in the real world.

Enhance software and basic hardware troubleshooting skills
Identify digital Imaging tools
Use digital imaging tools in a multimedia project
Demonstrate the capacity to compare, contrast, and use information presented in written, oral, audio-visual,
Access information from multiple sources and information-retrieval systems
human resources, and information accessed through technology
Use calculators in appropriate computational situations
Use graphing calculators to discover and prove mathematical concepts
Collect, organize, describe, represent, and interpret data in both simulations and real world situations
Use technology whenever appropriate to solve real-world problems which require strategies previously learned
finance, wages, banking and credit, home improvement problems, measurement, taxes, business situations, purchasing, and
Use mathematical skills, concepts, and applications in other disciplines (for example: graphs in social studies, patterns in art, or music and geometry in technology education)



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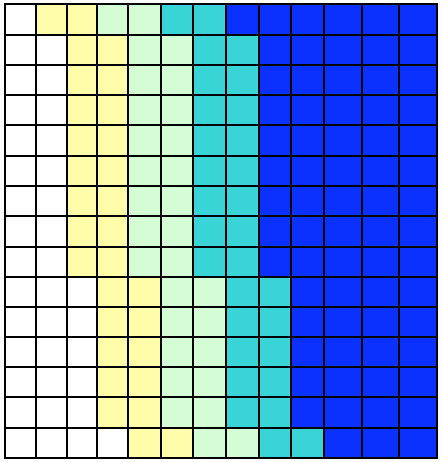
TECHNOLOGY PRODUCTIVITY, COMMUNICATION, AND RESEARCH

Students use the tools of information technology to enhance written and spoken messages

(Word Processing)

Enter and edit text using word processing software
Expand knowledge of word processing menu options
Perform basic text formatting such as centering, bold, italics, underline, etc.
Format a document using tabs and page margins
Change size, alignment, color and font of text
Highlight, delete, copy and move text within a document Use
dictionary, thesaurus and spell/grammar check Format
documents with tables and multiple columns Embellish
documents by adding borders, word art and graphics
Insert images into a document from a scanner, camera or other device
Insert hyperlinks into a document
Insert a header / footer into a document
Copy and paste from one file to another for the purpose of editing work
Utilize the application help function to complete other tasks
Convert a document to portable document format (.pdf)



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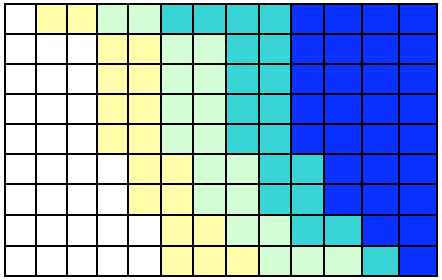
Students use technology to locate, evaluate, and collect information from a variety of sources. (Spreadsheets and Databases)

Use technology tools to process data and report results
Identify and define components of an electronic spreadsheet or database
Format cells in a spreadsheet
Enter labels, numbers, and formulas in a cell in a spreadsheet
Create, name and format a spreadsheet for a specific outcome
Create a chart and graph with labeled axis, legend, key, etc.
Manipulate data in a spreadsheet (i.e. rearrange, sort, select,apply formulas,filter, etc)
Define differences and similarities between spreadsheets and databases, identify purpose for each
Create and manipulate information in a database



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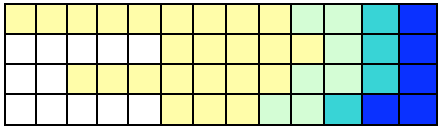
appropriateness for specific tasks

Use appropriate instructional software to enhance academic skills
Use appropriate specialized software and tools to facilitate learning (e.g. graphing calculators, Pasco probes,
Use developmentally appropriate multimedia resources to support learning
Locate source or bibliographic information from a web page



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Students use telecommunications to collaborate, publish, and interact with peers, experts, and (Internet and Communication)

Perform directed searches on the Internet and/or subscription databases

Recognize the Internet as a source of information

Understand the concept of e-mail

Understand and uses proper Netiquette

Discuss Internet safety issues such as viruses, spam, cyber-bullying, identity misrepresentation, etc

Recognize Internet safety mechanisms

Use a previously set bookmark to access a site on the Internet or database

Broaden and narrow a search term on the Internet

Create and communicate new knowledge and information using basic multimedia presentation

Expand knowledge of multimedia presentation software

Apply productivity tools for creating multimedia presentations

Create a multimedia presentation with sound

Create an electronic presentation with text, graphics, multimedia, and links

Use technology to capture information on film, tape, etc

Use broadcast instruction, audio/video conferencing, course management systems, or other distance learning applications